

April 2015–March 2016

Kavli IPMU

ANNUAL REPORT 2015



THE UNIVERSITY OF TOKYO



KAVLI IPMU

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On the cover: 29 gravitational lens candidates found through Space Warps, an online classification system which guides citizen scientists to become lens hunters. (credit: Space Warps, Canada-France-Hawaii Telescope Legacy Survey)

FOREWORD



Hitoshi Murayama
Director

It is my great pleasure to present the Kavli IPMU annual report for fiscal year 2015.

The Kavli Institute for the Physics and Mathematics of the Universe (Kavli IPMU) was founded on October 1, 2007. We proposed to address five basic questions about the Universe, how it began, what it is made of, what its fate is, what its fundamental laws are, and why we exist in it. We do so by combining mathematics, physics, and astronomy, employing accelerator-based experiments, underground experiments, and observations at telescopes. This Institute literally started from scratch, but now has grown to a size of about 150 people on site including graduate students and support staff.

In 2015, we were extremely happy that the 2015 Nobel Prize in Physics was awarded to the Kavli IPMU Principal Investigator, Takaaki Kajita, director of the University of Tokyo Institute for Cosmic Ray Research. His historic discovery of neutrino oscillation provides us the key clue to the long-standing problem that we tackle “why do we exist in the Universe?” A tiny amount of neutrino mass could have tilted the balance between matter and anti-matter and prevented a complete annihilation of these two and hence us, which is a well-known theory proposed by M. Fukugita and T. Yanagida at the Kavli IPMU. The discovery motivates our leading neutrino experiments including T2K and KamLAND-ZEN.

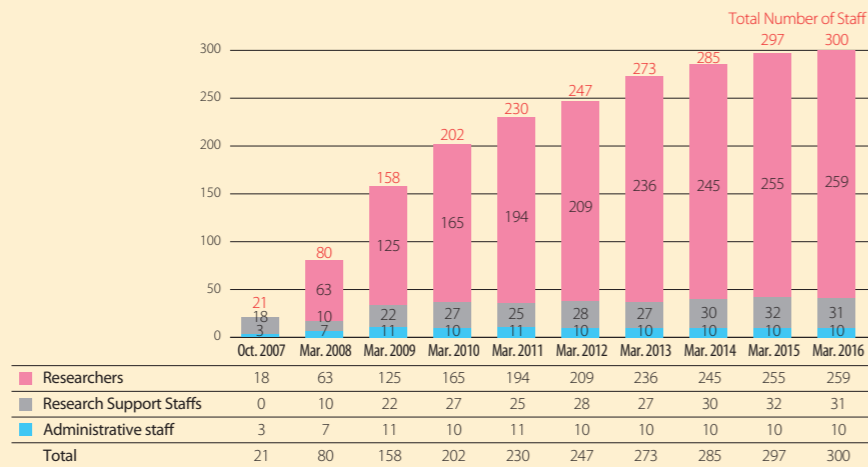
We advanced four missions to reinforce the WPI activities: science, fusion, globalization and system reform. I lined up those prominent scientific results in “Research Highlights”. “Tea-time” scheme is keeping its important role as the mutual interaction among mathematicians, physicists and astronomer. Established international research environment could be seen in the large numbers of application for the post-doctoral positions, the number of nearly 800 visitors with a half of them coming from abroad, organized 17 highly reputed international workshops and so on. The institute activated system reform in the University, resulting honored UTokyo President’s Award for business transformation.

We proposed an ambitious plan to include statistics in our research, joining a new international graduate program such as the Global Science Graduate Course (GSGC), created a new program to bring graduate students from Oxford University, push for new projects such as LiteBIRD, and make sure that the institute will be sustainable. We are looking into an even brighter future!

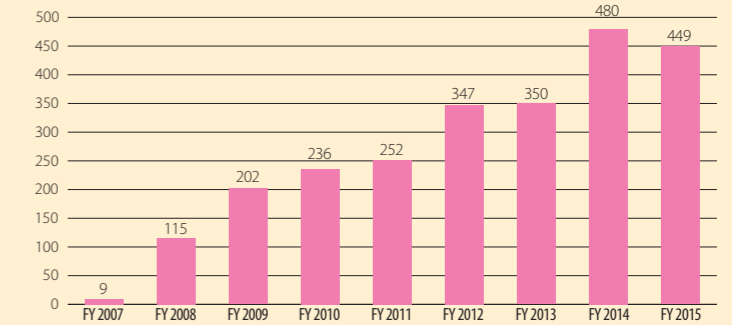


1 STATISTICS

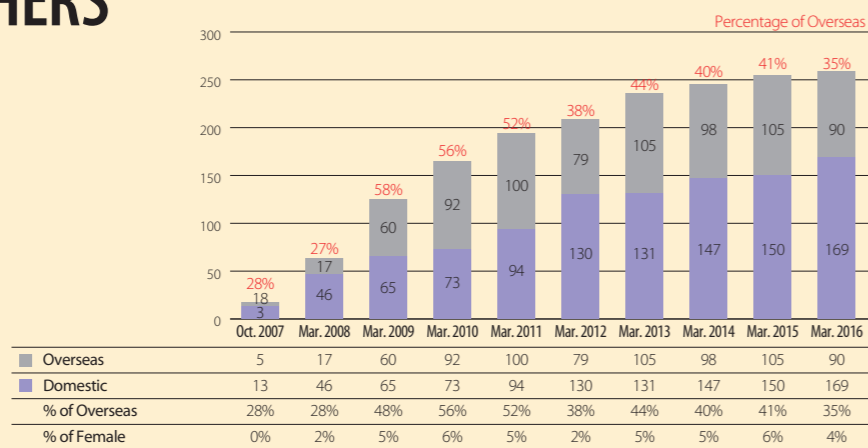
STAFF



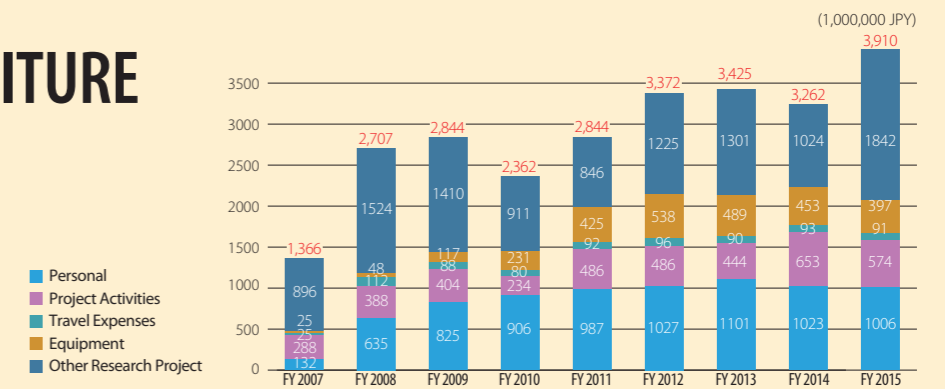
PUBLICATIONS



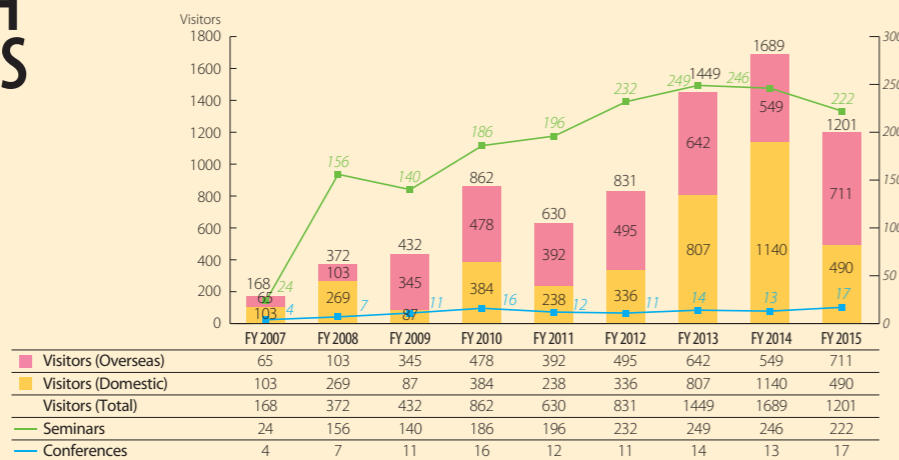
RESEARCHERS



TOTAL EXPENDITURE

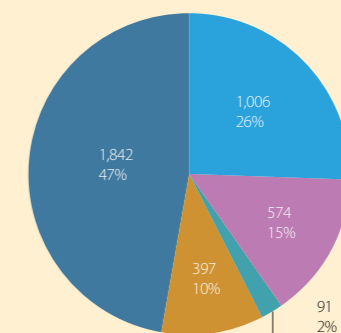


RESEARCH ACTIVITIES



BREAKDOWN OF FY 2015 TOTAL EXPENDITURE

(1,000,000 JPY)



2 NEWS & EVENTS

April 2015-March 2016

APRIL

- >> Toshiyuki Kobayashi Awarded the 2015 JMSJ Outstanding Paper Prize
- >> Spring Science Camp for High School Students held in Kavli IPMU

MAY

- >> International Workshop on Condensed Matter Physics & AdS/CFT
- >> How Spacetime is built by Quantum Entanglement: New Insight into Unification of General Relativity and Quantum Mechanics
- >> Science and Everyday Life - Series vol.05 "Order"
- >> This year's Marcel Grossmann Award goes to Ken'ichi Nomoto

JUNE

- >> Math Open House for Prospective Graduate Students
- >> Science Cafe 2015
- >> Hyper-Kamiokande Collaboration Meeting

JULY

- >> Analytic representation theory of Lie group
- >> Dark Matter Map Begins to Reveal the Universe's Early History
- >> Déjà-vu, new theory says dark matter acts like well-known particle
- >> Tokyo-Berkeley Summer School "Geometry and Mathematical Physics"
- >> Event: A look into the universe at Star Festival

AUGUST

- >> Kavli IPMU at the 2015 Super Science High School Student Fair
- >> Summer Science Program for Female Middle & High School Students
- >> An artist is joining Kavli IPMU for a month

SEPTEMBER

- >> Kavli-IPMU-Durham-KIAS workshop: New particle searches confronting the first LHC run-2 data
- >> Latest results from dark matter detector XMASS presented in Torino
- >> Workshop "Why does the Universe accelerate? - Exhaustive study and challenge for the future- "
- >> 2015 Nobel Prize in Physics awarded to Takaaki Kajita
- >> SCJ and JPS Public Lecture

OCTOBER

- >> Workshop on Astrophysics of Dark Matter
- >> ALMA telescope unveils rapid formation of new stars in distant galaxies
- >> Open campus Kashiwa 2015
- >> TeV Particle Astrophysics 2015
- >> The 2015 Kavli Prize Laureate Lectures in Tokyo

NOVEMBER

- >> Takaaki Kajita receives Japan's Order of Culture
- >> Kavli IPMU Visiting Senior Scientist Eiichiro Komatsu named American Physical Society Fellow
- >> Yoichiro Suzuki and Takaaki Kajita awarded 2016 Breakthrough Prize in Fundamental Physics
- >> PFS-SSP galaxy survey workshop 2015
- >> Categorical and Analytic Invariants in Algebraic Geometry 2
- >> Yuji Tachikawa receives 2016 Fundamental Physics New Horizons Prize
- >> 13th Kavli IPMU-ICRR Joint Public Lecture "See the unseen Universe"

DECEMBER

- >> B-mode from Space
- >> The Fifth Annual WPI Joint Symposium in Kyoto

JANUARY

- >> MOU between Kavli IPMU and ISM broadens research collaboration
- >> The 10th Asian Winter School on Strings, Particles and Cosmology
- >> Kavli IPMU international section staff commended at 2015 UTokyo business transformation awards
- >> 1st Kavli IPMU-ELSI Joint Public Lecture "Question of Origins"
- >> Galaxy cluster environment not dictated by its mass alone
- >> 2nd Hyper-Kamiokande Proto-Collaboration Meeting

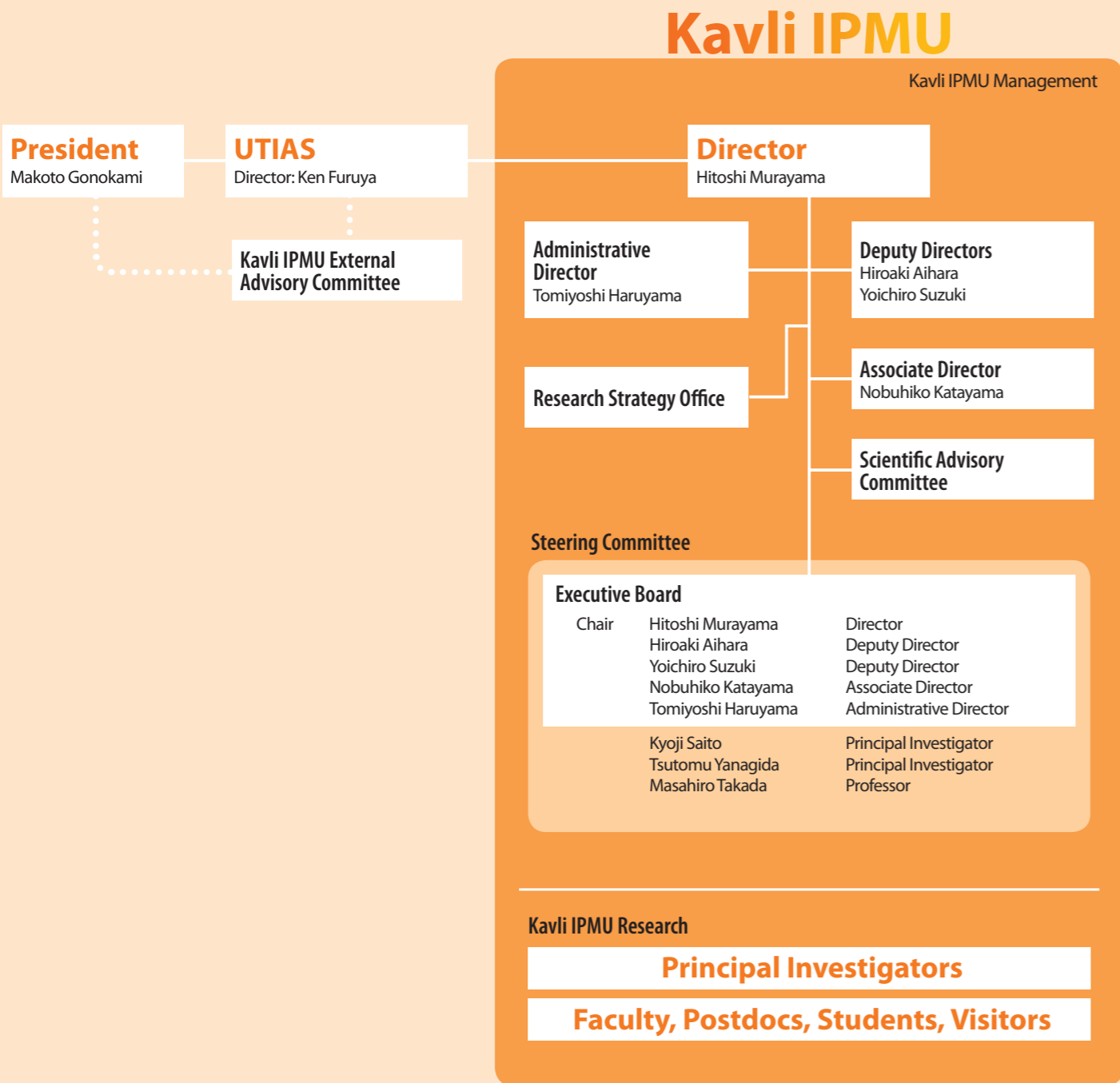
FEBRUARY

- >> Kavli IPMU in WPI exhibition booth at AAAS Annual Meeting in Washington D.C.
- >> 4th Annual Symposium of the Innovative Area on Multi-messenger Study of Gravitational Wave Sources
- >> Subaru telescope takes snapshot of fast radio burst host galaxy

MARCH

- >> Kavli IPMU Public Lecture "East and West view of the Universe"
- >> Four Lectures by Nathan Seiberg
- >> Berkeley Week @IPMU
- >> Nathan Seiberg Symposium
- >> Magnetar could have boosted explosion of extremely bright supernova
- >> Takaaki Kajita Nobel Prize Commemorative Lecture Series: Where do we come from? - Beyond the Nobel Prize in Neutrinos

3 ORGANIZATION



The Kavli IPMU has a rather unique organization. While research is conducted in a flatstructure manner with loosely defined grouping, the decision making is done in a top-down scheme under the Director's strong leadership. This scheme minimizes the administrative load for the researchers. It is also intended to maximally extract young researcher's creative and challenging minds as well as to encourage daily cross-disciplinary interactions.

The Director is appointed by the President of the University of Tokyo and reports directly to his office. The Director proposes to hire the Principal Investigators to the President. For other hiring of research staff and administrative staff, he has a complete authority. He is also solely responsible for making all other decisions. He is assisted by the two Deputy Directors, the Associate Director, and the Administrative Director. They constitute the Executive Board (EB) and regularly meet to ensure smooth operation of the Institute. The EB has direct access to the Office of the President for consultations on both scientific and administrative matters.

The Director is obliged to report the appointments of new Principal Investigators and faculty members to the Director of

the University of Tokyo Institutes for Advanced Study (UTIAS). Also, to clear the university formality in faculty hiring, the decisions of the Institute have to be endorsed by the Steering Committee of the Kavli IPMU.

The Principal Investigators are world's leading scientists in their fields. They have a large autonomy in the research they conduct. They can make proposals to the Director to hire research staff at the Institute.

The Scientific Advisory Committee (SAC) gives advice to the Director on hiring scientific staff and planning scientific strategies. The members are appointed by the Director.

The External Advisory Committee (EAC), appointed by the President of the University of Tokyo, reviews annually the scientific achievement and activities of the Institute and advises the President on scientific priorities and the research activities to keep the Institute stay on the course of its objectives.

The Scientific Advisory Committee Members (March 2016)

Hiroaki Aihara	U Tokyo, Physics Dept	High Energy Physics
Yoichiro Suzuki	U Tokyo, ICRR	Astroparticle Physics
Nobuhiko Katayama	Kavli IPMU	High Energy Physics
Toshitake Kohno	U Tokyo, Mathematics Dept	Mathematics
Hiroshi Ooguri	Caltech	Particle Theory
Kyoji Saito	Kavli IPMU	Mathematics
David Spergel	Princeton U	Astrophysics
Tsutomu Yanagida	Kavli IPMU	Particle Theory

The External Advisory Committee Members (March 2016)

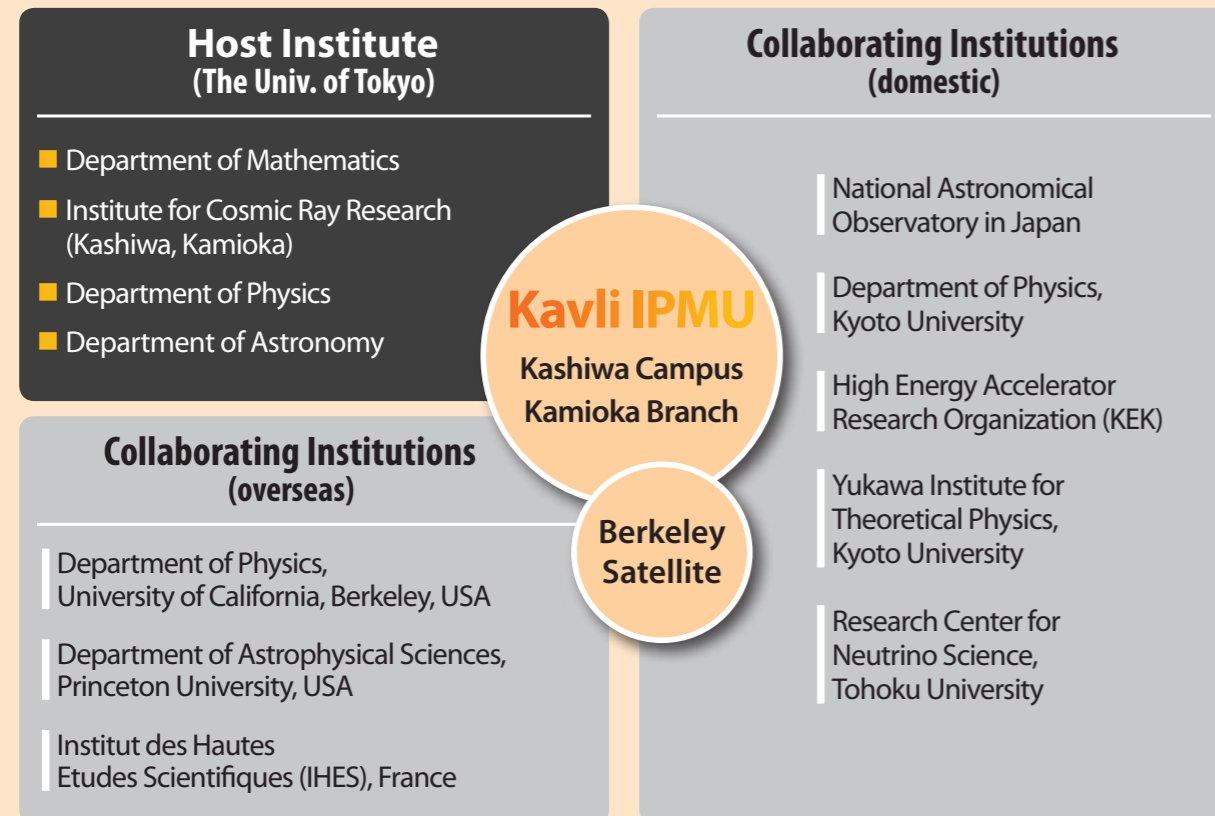
John Ellis	King's College London	Particle Theory
Steven Kahn	SLAC/Stanford U; Chair	Astrophysics
Young-Kee Kim	U Chicago	High Energy Physics
Sadayoshi Kojima	Tokyo Tech	Mathematics
David Morrison	UC Santa Barbara	Mathematics and Physics
Sadanori Okamura	Hosei U	Astronomy
Nigel Smith	SNOLAB	Astroparticle Physics

The Research Strategy Office pursues external funds in order to strengthen the research activities. A university research administrator (URA) was hired to start the office activities.

The main laboratory building on the Kashiwa Campus provides a basis for our researchers. Even most of experimentalists who are involved in Kamioka experiments and astronomical observations spend a good fraction of their time in Kashiwa for analyzing data, sharing seminars and discussing with theorists. The Kamioka Branch is a basis for the Kavli

IPMU staff members who are engaging in the underground experiments conducted at the Kamioka underground laboratory. The Berkeley Satellite, besides being a place for research, serves as a contact place to the US scientific community. We also have a close collaborative relation with several institutions both in Japan and overseas as well as with other departments within the University of Tokyo.

The Kavli IPMU holds close relations with similar research institutions in the world for encouraging exchanges in research and training of young research staff. We have signed either an agreement or a memorandum of understanding with those institutions.



- Foreign institutions/consortia/programs having MOU with the Kavli IPMU**
- The University of California, Berkeley, Department of Physics
 - National Taiwan University, Leung Center for Cosmology and Particle Astrophysics (LeCosPA)
 - The Astrophysics Research Consortium [on the Sloan Digital Sky Survey III]
 - The Astrophysics Research Consortium [on the Sloan Digital Sky Survey AS3 ("After SDSS III")]
 - The Astrophysics Research Consortium [on the Sloan Digital Sky Survey IV]
 - Garching/Munich Cluster of Excellence on "The Origin and Structure of the Universe"
 - UNIFY (Unification of Fundamental Forces and Applications) [under the EU's Seventh Framework Program]
 - The Scuola Internazionale Superiore di Studi Avanzati (SISSA)
 - The Academia Sinica Institute of Astronomy and Astrophysics of Taiwan (ASIAA) [on the SuMIRe Project]
 - The Intermediate Palomar Transient Factory (iPTF)
 - Steklov Mathematical Institute, Russian Academy of Sciences
 - Center for Mathematical Sciences, Tsinghua University
 - The Tata Institute of Fundamental Research
 - TRIUMF (Canada's National Laboratory for Particle and Nuclear Physics)
 - Deutsches Elektronen Synchrotron (DESY)
 - Princeton University



Director

Hitoshi Murayama, Particle Theory

Deputy Directors

Hiroaki Aihara, High Energy Physics
Yoichiro Suzuki, Astroparticle Physics

Associate Director

Nobuhiko Katayama, High Energy Physics

Principal Investigators

Hiroaki Aihara (U Tokyo), High Energy Physics
Alexey Bondal (Steklov Math. Inst.), Mathematics
Kunio Inoue (Tohoku U), Neutrino Physics
Takaaki Kajita (U Tokyo, ICRR), Neutrino Physics
Stavros Katsanevas (U Paris 7), Astroparticle Physics

Masahiro Kawaski, (U Tokyo, ICRR), Cosmology (from 2015/08/01)
Toshiyuki Kobayashi (U Tokyo-Math), Mathematics
Toshitake Kohno (U Tokyo-Mat), Mathematics
Hitoshi Murayama (Kavli IPMU & UC Berkeley), Particle Theory
Masayuki Nakahata (U Tokyo-ICRR), Astroparticle Physics
Mihoko Nojiri (KEK), Particle Theory
Ken'ichi Nomoto (Kavli IPMU), Astronomy
Hirosi Ooguri (Caltech), Mathematical Physics
Kyoji Saito (Kavli IPMU), Mathematics
Henry Sobel W (UC Irvine), Astroparticle Physics
David Spergel (Princeton U), Cosmology
Naoshi Sugiyama (Nagoya U), Cosmology
Yoichiro Suzuki (Kavli IPMU), Astroparticle Physics
Tsutomu Yanagida (Kavli IPMU), Particle Theory

Faculty Members

Tomoyuki Abe, Mathematics
Alexey Bondal, Mathematics (2015/08/01 - 2016/02/15)
Kevin Allen Bundy, Astronomy
Masataka Fukugita, Astrophysics
Marian Gorski Krzysztof, Cosmology (from 2016/02/08)
Mark Hartz Patrick, Neutrino Physics
Masashi Hazumi, High Energy Physics
Simeon Hellerman John, String Theory
Takeo Higuchi, High Energy Physics
Chiaki Hikage, Astronomy (from 2015/04/16)
Kentaro Hori, String Theory
Mikhail Kapranov, Mathematics
Hiroshi Karoji, Astrophysics
Nobuhiko Katayama, High Energy Physics
Alexandre Kozlov, Neutrino Physics
Alexie, Solange Leauthaud Harnett, Astrophysics
Kai Martens Uwe, Astroparticle Physics
Shigeki Matsumoto, Cosmology
Todor Milanov Eliseev, Mathematics
Surhud More, Astronomy
Hitoshi Murayama, Particle Theory
Takahiro Nishimichi, Astronomy
Ken'ichi Nomoto, Astronomy
Yasunori Nomura, Particle Theory (till 2015/05/06)
Kyoji Saito, Mathematics
John Silverman David, Astronomy
Hajime Sugai, Astronomy
Nao Suzuki, Astrophysics
Yoichiro Suzuki, Astroparticle Physics
Masahiro Takada, Cosmology
Naoyuki Tamura, Astronomy
Yukinobu Toda, Mathematics
Edwin Turner L, Astrophysics (till 2015/06/30)
Mark Vagins Robert, Astroparticle Physics
Taizan Watari, Particle Theory
Masahito Yamazaki, String Theory
Tsutomu Yanagida, Particle Theory
Naoki Yasuda, Astronomy
Naoki Yoshida, Astrophysics

Postdoctoral Researchers

Amir Babak Aazami, Mathematics (till 2015/01/15)
Shamik Banerjee, String Theory (till 2015/02/29)
Christophe Bronner Pierre Yves, High Energy Physics
Richard Calland Graham, Neutrino Physics
Edmond Cheung, Astronomy
Tanmay Neelesh Deshpande, Mathematics (till 2015/11/30)
William Donovan Ross Goodchild, Mathematics
Dongmin Gang, String Theory
ChengCheng Han, High Energy Physics (from 2015/09/16)
Kaori Hattori, High Energy Physics (from 2015/07/01)
Kohei Hayashi, Astronomy
Song Huang, Astrophysics

Ran Huo, Particle Theory
Yohsuke Imagi, Mathematics
Ivan Chi-Ho Ip, Mathematics (till 2015/05/15)
Tadashi Ishibe, Mathematics
Miho N. Ishigaki, Astronomy
Changwoo Joo, High Energy Physics (from 2015/09/01)
Ilya Karzhemanov, Mathematics
Tirasan Khandhawit, Mathematics
Claire Nicole Lackner, Astronomy (till 2015/05/31)
Feng Luo, Particle Theory (from 2015/11/01)
Ryu Makiya, Astronomy (from 2016/01/16)
Jonathan Maltz, String Theory (till 2015/09/17)
Lluis Marti Magro, Astroparticle Physics
Charles Milton Melby-Thompson, String Theory (till 2015/09/20)
Rene Meyer, String Theory (till 2015/09/30)
Hironao Miyatake, High Energy Physics (till 2015/08/31)
Anupreeta Sadashiv More, Astronomy
Yuki Moritani, Astronomy
Kyohei Mukaida, Theoretical Physics
Satyanarayan Mukhopadhyay, Particle Theory (till 2015/09/30)
Natsumi Nagata, Particle Theory (till 2015/08/31)
Yu Nakayama, String Theory (from 2015/09/01)
Ryo Namba, Cosmology
Haruki Nishino, High Energy Physics (till 2015/04/30)
Teppei Okumura, Cosmology
Yoshiki Oshima, Mathematics
Hathurusinghege Dulip Bandara Piyaratne, Mathematics
Mauricio Andres Romo Jorquera, String Theory (till 2015/09/15)
Wiphu Rujopakarn, Astronomy (till 2015/08/07 from 2016/03/01)
Wiphu Rujopakarn, Astronomy (2015/08/08 - 2016/02/29)
Shun Saito, Cosmology
Sho Saito, Mathematics (from 2015/09/01)
Yuki Sakurai, Experimental Physics (from 2016/02/01)
Kai Ruven Schmitz, Particle Theory (till 2015/10/31)
Andreas Schulze, Astronomy
Artan Sheshmani, Mathematics (from 2015/09/07)
Atsushi Shimono, Astrophysics (from 2015/08/01)
Maresuke Shiraishi, Astronomy
Charles Martin Siegel, Mathematics (till 2015/08/15)
Alessandro Sonnenfeld, Astronomy (from 2015/09/01)
David Vincent Stark, Astronomy (from 2015/09/01)
Naonori Sugiyama, Astronomy
Yasuhiro Takemoto, Experimental Physics
Michihisa Takeuchi, Particle Theory
Alexey Tolstov, Astrophysics
Yue-Lin Sming Tsai, Particle Theory
Benedetta Vulcani, Astronomy (till 2015/10/15)
James Michael Wallbridge, Mathematics
Matthias Weissenbacher, String Theory (from 2015/10/16)
Benda Xu, Experimental Physics

Itamar Yaakov, Particle Theory (from 2015/09/01)
Kiyoto Yabe, Astronomy

Support Scientists

Steven Jeffery Bickerton, Astronomy (till 2015/08/31)
Tomoko Morii, High Energy Physics
Ken Sakamoto, Astrophysics (2015/07/01 - 2015/12/30)
Atsushi Shimono, Astrophysics (till 2015/07/31)
Joshua Speagle, Astronomy (from 2015/08/01)
Hiroshi Takano, Particle Theory (till 2015/07/31)

Joint Appointments

Sergei Blinnikov (ITEP), Astronomy (2015/10/01 - 2015/11/24)
Alexander Kusenko (UCLA), Particle Theory (2015/10/05 - 2015/12/03)
Hitoshi Murayama (Berkeley), Particle Theory
Serguey Petcov Todorov (SISSA), Particle Theory (2015/10/26 - 2015/11/24)
Edwin L Turner (Princeton U), Astrophysics (2016/01/12 - 2016/01/30, 2016/03/10 - 2016/03/22)

Affiliate Members

Kou Abe (U Tokyo-ICRR), Astroparticle Physics
Mina Aganagic (UC Berkeley), String Theory
Font-Ribera Andreu (LBNL), Astronomy (from 2015/10/09)
Bruce Berger (Colorado State U), Neutrino Physics
Melina Bersten (CONICET), Astronomy
Sergei Blinnikov (ITEP), Astronomy
Raphael Bousso (UC Berkeley), Cosmology
Andrew Bunker (U Oxford), Astrophysics
Martin Bureau Gilles (U Oxford), Astrophysics
Scott Huai-Lei Carnahan (U Tsukuba), Mathematics
Neal Dalal K (U Illinois), Astrophysics
Patrick Decowski (U Amsterdam-GRAPPA), Neutrino Physics
Jason Detwiler (U Washington), Experimental Physics
Mamoru Doi (U Tokyo-IoA), Astronomy
Yuri Efremenko (U Tennessee), Neutrino Physics
Tohru Eguchi (Rikkyo U), Field Theory
Motoi Endo (U Tokyo), Particle Theory
Sanshiro Enomoto (U Washington), Neutrino Physics
Andrea Ferrara (Scuola Normale Superiore di Pisa), Astronomy
Gaston Folatelli (CONICET), Astrophysics
Brian Fujikawa (LBL), Neutrino Physics
Kenji Fukaya (SCGP), Mathematics
Masaki Fukushima (U Tokyo-ICRR), Astroparticle Physics (till 2015/09/30)
Kaoru Hagiwara (KEK), Particle Theory
Lawrence Hall J (UC Berkeley), Particle Theory
Koichi Hamaguchi (U Tokyo-Phys), Particle Theory
Koji Hara (KEK), Particle Theory
Tetsuo Hatsuda (RIKEN), Nuclear Physics
Yoshinari Hayato (U Tokyo-ICRR), Neutrino Physics

Karsten Heeger (Yale U), Neutrino Physics
Chiaki Hikage (U Tokyo-IPMU), Astronomy (2015/04/01 - 2015/04/15)
Katsuki Hiraide (U Tokyo-ICRR), Astroparticle Physics
Raphael Hirschi (Keele U), Astronomy
Junji Hisano (Nagoya U), Particle Theory
Petr Horava (UC Berkeley), String Theory
Glen Horton-Smith (Kansas State U), Neutrino Physics
Shinobu Hosono (U Tokyo-Math), Mathematical Physics
Masahiro Ibe (U Tokyo-ICRR), Particle Theory
Koichi Ichimura (U Tokyo-ICRR), Astroparticle Physics
Motoyasu Ikeda (U Tokyo-ICRR), High Energy Physics
Ken'ichi Izawa (Kyoto U-YITP), Particle Theory
Chang Kee Jung (SUNY, Stony Brook), High Energy Physics
Jun Kameda (U Tokyo-ICRR), Neutrino Physics
Amanda Karakas Irene (Australian Natl U), Astronomy
Hiroshi Karoji (NINS), Astronomy (till 2015/08/31)
Masaki Kashiwara (Kyoto U), Mathematics
Akishi Kato (U Tokyo-Math), Mathematical Physics
Yasuyuki Kawahigashi (U Tokyo-Math), Mathematics
Seiji Kawamura (U Tokyo-ICRR), Astroparticle Physics
Masahiro Kawasaki (U Tokyo-ICRR), Cosmology (till 2015/07/31)
Edward Kearns T. (Boston U), Neutrino Physics
Gregory Keefer J. (LLNL), Neutrino Physics
Sergey Ketov (Tokyo Metropolitan U), Cosmology
Nobuhiro Kimura (KEK), Gravity
Anatol Kirillov N. (Kyoto U), Mathematics
Yasuhiro Kishimoto (U Tokyo-ICRR), Neutrino Physics
Ryuichiro Kitano (KEK), Particle Theory
Chiaki Kobayashi (CAR, U of Hertfordshire), Astronomy
Kazuyoshi Kobayashi (U Tokyo-ICRR), Astroparticle Physics
Masayuki Koga (Tohoku U), Neutrino Physics
Eiichiro Komatsu (MPI for Astrophys), Cosmology
Satoshi Kondo (NRU-HSE), Mathematics
Yusuke Koshio (Okayama U), Neutrino Physics
Takahiro Kubota (Osaka U), String Theory
Alexander Kusenko (UCLA), Particle Theory
Si Li (Tsinghua U), Mathematics
Marco Limongi (Rome Observatory), Astronomy
Keiichi Maeda (Kyoto U), Astrophysics
Yuya Matsumoto (Nagoya U), Mathematics (from 2015/06/14)
Brice Menard (Johns Hopkins U), Astrophysics
Makoto Miura (U Tokyo-ICRR), High Energy Physics
Shigetaka Moriyama (U Tokyo-ICRR), Neutrino Physics
Takeo Moroi (U Tokyo-Phys), Particle Theory
Tomoki Morokuma (U Tokyo-IoA), Astronomy
Shinji Mukohyama (Kyoto U-YITP), Cosmology
Motohico Mulase (UC Davis), Mathematics
Katsuro Nakamura (KEK), Experimental Physics
Kengo Nakamura (Tohoku U), Neutrino Physics
Tsuyoshi Nakaya (Kyoto U), High Energy Physics
Kazunori Nakayama (U Tokyo-Phys), Cosmology

Shoei Nakayama (U Tokyo-ICRR), Neutrino Physics
Yasunori Nomura (UC Berkeley), Particle Theory (from 2015/05/07)
Hiroshi Ogawa (U Tokyo-ICRR), Astroparticle Physics
Masamune Oguri (U Tokyo-RESCEU), Cosmology
Kimihiro Okumura (U Tokyo-ICRR), Neutrino Physics
Yoshiyuki Onuki (U Tokyo-ICEPP), High Energy Physics
Christian Ott (Caltech), Astrophysics
Masami Ouchi (U Tokyo-ICRR), Astronomy
Andrei Pajitnov (U Nantes), Mathematics
Myeonghun Park (APCTP), Particle Theory
Serguey Petcov Todorov (SISSA), Particle Theory
Andreas Piepke (U Alabama), Neutrino Physics
Robert Michael Quimby (San Diego State U), Astronomy
Jason Rhodes (NASA JPL/Caltech), Astrophysics
Yoshihisa Saito (U Tokyo-Math), Mathematics
Yoshio Saito (KEK), High Energy Physics
Hidetaka Sakai (U Tokyo-Math), Mathematics
Katsuhiko Sato (NINS), Cosmology
Nobuhiko Sato (KEK), Engineering
Kate Scholberg (Duke U), Neutrino Physics
Hiroyuki Sekiya (U Tokyo-ICRR), Astroparticle Physics
Masato Shiozawa (U Tokyo-ICRR), High Energy Physics
Fedor Smirnov (LPHE), Mathematics
Michael Smy (UC Irvine), Neutrino Physics
Charles Louis Steinhardt (CALTECH), Astronomy
James Stone L. (Boston U), High Energy Physics
Shigeki Sugimoto (Kyoto U), String Theory
Toshikazu Suzuki (KEK), Gravity
Yuji Tachikawa (U Tokyo-Phys), Particle Theory
Fuminobu Takahashi (Tohoku U), Particle Theory
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5 RESEARCH HIGHLIGHT

5.1 Higher Category Extensions of Holonomy Representations of Braid Groups



Toshitake Kohno

I have been working on representations of braid groups as the monodromy of the Knizhnik-Zamolodchikov (KZ) equation appearing in conformal field theory. In 2015, I developed the theory in the following two aspects. The first one is the description of the quantum symmetry of the monodromy of the KZ equation by means of the hypergeometric integrals and the second one is an extension of the the monodromy representaions of braid groups to higher category.

The notion of braid groups was first systematically studied by E. Artin in the 1920's. A geometric braid consists of disjoint strands as depicted in Figure 1 and the isotopy classes of geometric braids form a group called the braid group, which is described by generators and relations as shown in Figure 1.

Since the discovery of the Jones polynomial in the 1980's we have revealed that the theory of braid groups is related various subjects in mathematical physics including the theory quntum groups and conformal field theory. My contribution in this field is summarized as in Figure 2, in particular, I described the symmetry of the monodromy of the KZ connection in terms of quantum groups, which is known as Drinfeld'd-Kohno theorem.

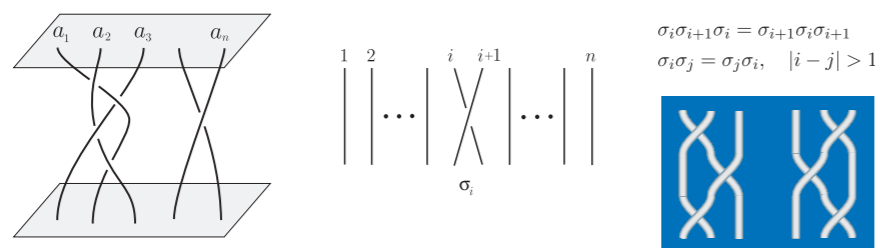


Figure 1: Braid groups – generators and relations.

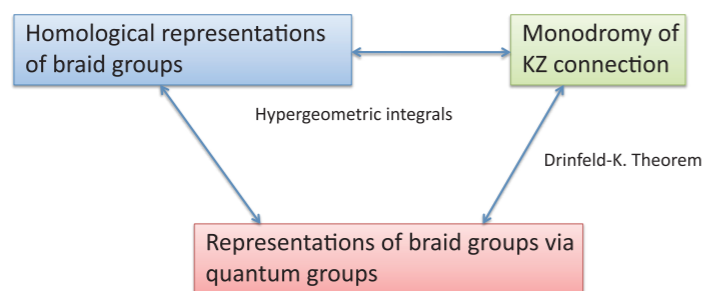


Figure 2: Quantum symmetry of monodromy representations of braid groups.

Homological representations of braid groups are defined as the action of homeomorphisms of a punctured disk on the homology of an abelian covering of its configuration space. This construction gives faithful representations of braid groups and was extensively studied by D. Krammer and S. Bigelow. I described a relation between homological representations of braid groups and the monodromy representations of KZ connections. Based on the solutions of the KZ equation expressed by hypergeometric integrals due to V. Schechtman and A. Varchenko, I proved that specializations of the homological representations of braid groups are equivalent to the monodromy of the KZ connections with values in the space of null vectors in the tensor product of Verma modules when the parameters are generic. I described the action of quantum groups on the space of homology with local coefficients and recovered quantum symmetry in homological representations. I also studied the case of the resonance at infinity appearing in conformal field theory and investigated the structure of integration cycles. It has been shown that the KZ equation is represented as a differential equation satisfied by period integrals for certain algebraic varieties, and is expressed as a Gauss-Manin connection.

It is an important problem to construct categorification of quantum representations of braid groups. I developed a method to construct higher category extension of holonomy representations of homotopy path groupoid by means of Chen's formal homology connection. I applied this general method to the case of the KZ connections and described a generalization of holonomy representations of braid groups to higher categories. The 2-categories consist of objects, morphisms and 2-morphisms for any pair of morphisms. I constructed a 2-functor from the path 2-groupoid of the configuration space, which can be extended to representations of braid cobordisms as shown in Figure 3. This construction is closely related to invariants of 2 dimensional braids. By means of homological representation of the braid groups, the monodromy representations of KZ connection can be considered as the action of braids on middle dimensional homology classes represented by Lagrangian submanifolds of certain configuration spaces. It would be an interesting problem to describe the action of braid cobordisms on the associated Fukaya category.

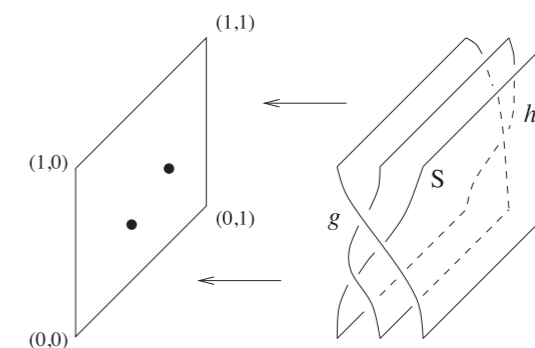


Figure 3: Braid cobordisms

5.2 Higher-Genus Reconstruction in Gromov-Witten Theory

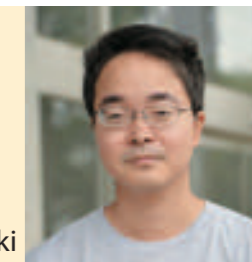
Todor Milanov



It was conjectured by Givental and proved by Teleman that if a smooth projective variety X has semi-simple quantum cohomology, then the higher-genus Gromov-Witten (GW) invariants of X can be reconstructed from the genus-0 ones. On the other hand, the genus-0 GW invariants can be described in an elegant way using the concept of a Frobenius manifold. There are several ways to say what a Frobenius manifold is, but the one that is most relevant to my research is to think of a semi-simple Frobenius manifold as a solution to the Riemann-Hilbert problem. Namely, the Frobenius structure is defined in terms of an isomonodromic family of Fuchsian connections, which is determined uniquely by its monodromy data. Hence, we are lead naturally to the problem of expressing all GW invariants in terms of the monodromy data of the Frobenius manifold underlying the quantum cohomology of X . In general, the solution to the Riemann-Hilbert problem, if it exists, is highly transcendental. A priori, it is not clear at all why we should expect that there is a meaningful way to express the GW invariants in terms of the monodromy data. However, in the special case corresponding to simple singularities, in collaboration with B. Bakalov, I was able to find that the reconstruction of the invariants in terms of the monodromy data is governed by a twisted representation of a W -algebra. The main ingredients of our construction are straightforward to extend to any semi-simple Frobenius manifold. Namely, using the periods of the Frobenius manifold we introduce a certain set of vertex operators that generate a twisted Vertex Operator Algebra (VOA) representation. However, there are two difficulties. First, we need to establish the compatibility between the monodromy and the analytic continuation of the so-called phase factors. The latter are multi-valued analytic functions that arise when we compose two vertex operators. The second problem is that in the definition of the W -algebra we have to compute the kernel of several linear operators, known as the screening operators. I was able to solve the problem about the phase factors in 2015. This is essentially the content of my preprint arXiv:1502.07444. In particular, we get a very interesting twisted VOA representation defined in terms of the periods of any semi-simple Frobenius manifold. The second problem is much more difficult. The computation of the kernel of the screening operators in the case of simple singularities is based on deep results from the representation theory of simple Lie algebras. In general, we need new ideas. I have been investigating for several years the topological recursion proposed by Eynard and Orantin. The initial data of the recursion is given by the so-called spectral curve, which by definition is a branched covering C of \mathbf{P}^1 . The output is a set of correlator forms. I proved that for every simple singularity there exists a spectral curve such that the corresponding topological recursion produces the invariants defined via Givental's higher-genus reconstruction. This is my second result during 2015. The interesting question is whether we can use the geometry of the spectral curve to find states in the W -algebra. Towards the end of 2015, I proved that this is the case for simple singularities of type A . We could say that the topological recursion is a very promising tool to investigate the W -algebras arising in the theory of semi-simple Frobenius manifolds.

5.3 Conformal Blocks and Representation Theory

Masahito Yamazaki



Conformal field theories describe long-distance behavior of generic physical systems (including quantum field theory and statistical lattice models), and has applications to many phenomena in Nature. Recently there has been tremendous developments in constraining conformal field theories, starting from a few basic principles, such as unitarity.

One of the most crucial inputs for this activity is a function known as the conformal block $g_{\Delta,l}$. This is a building block for the correlation functions of the theory, and is a set of universal functions independent of the details of the theory, except for the dimension Δ and the spin l of the intermediate operator.

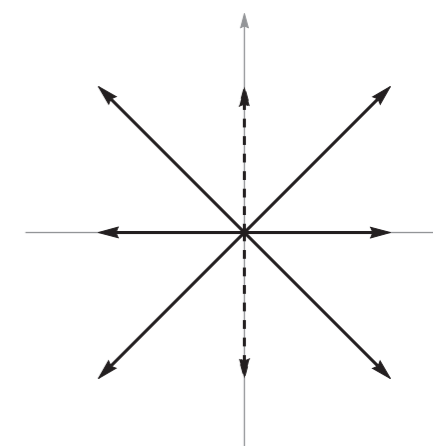
While this function has been computed in many different examples, it would be nice to find an efficient algorithm to compute them, and in particular to uncover the underlying analytical structures.

In a joint work with J. Penedones and E. Trevisani (JHEP 09, 070 (2016)), we established a novel recursion relation for conformal blocks, which is also efficient for practical numerical evaluations. Our work systematically derives and generalizes the previous results by F. Kos, D. Poland and D. Simmons-Duffin, and can be thought of as higher-dimensional analogs of the Zamolodchikov recursion relation in two dimensions.

The basic idea is simple: we regard the conformal block $g_{\Delta,l}$ as a complex function of the dimension Δ , and then appeal to complex analysis—a meromorphic function on the complex plane is determined by the positions of its poles and the residues at the poles.

It turns out that the positions of such poles are governed by mathematics: the representation theory of parabolic Verma modules. The relevant symmetry here is the conformal symmetry, which is for example $SO(5)$ when the spacetime dimension is three. This symmetry is encoded concisely in the so-called root system, which is shown in the figure.

We can consider higher spacetime dimensions, or conformal field theories with supersymmetry. In these cases we have a more complicated root system, which will be realized as a set of vectors in higher-dimensional lattice. In my paper (JHEP 10, 035 (2016)) and then more recently in collaboration with an IPMU mathematician Y. Oshima (arXiv:1603.06705[math.RT]), we worked out relevant representation theories, and in particular obtained a new determinant formula for parabolic Verma modules for the case of conformal field theories with supersymmetry.



5.4 Statistics of Laws of Nature Among String Theory Vacua

Taizan Watari



What we understand as string theory today admits enormous number of vacua. Laws of nature for low-energy physics associated with one vacuum are different from those with another. What we know as the Standard Model of particle physics should be a set of laws of nature associated with one of those vacua, if quantum theory of gravity is to be given by string theory.

In the language of Quantum Field Theory, a specific choice of a set of laws of nature (at a given vacuum) is nothing more than a choice of a model in Quantum Field Theory; a model is specified by a choice of the gauge group, representation and multiplicity of matter fields, and coupling constants indicating the strength of interactions of various types. So, when an ensemble of vacua of string theory is given, we can think of statistical distribution of the gauge group, matter multiplicities and coupling constants, that is, statistical distribution of the laws of nature.

M. Douglas and his collaborators made an early attempt of studying this statistical distributions; see hep-th/0307049 (JHEP **0401** (2004) 060 and hep-th/0404116 (JHEP **0405** (2004) 072). Their method of analysis of statistics had limited capability, however, and has been applied to derive distributions only of cosmological constant, gravitino mass and a few more. In a series of papers arXiv:1401.5908 (JHEP **1404** (2014) 050) and arXiv:1408.6167 (JHEP **1501** (2015) 047), A. Braun, Y. Kimura and myself extended the method of analysis (while keeping the idea of Douglas et.al.) so one can study statistical distributions of almost all aspects of laws of nature, including the gauge group, matter multiplicity and coupling constants.

By exploiting this extended version of the analysis, A. Braun and I found that vacua with a large rank gauge group are extremely rare among the ensemble of vacua obtained by flux compactifications of string theory (arXiv:1408.6156 Phys. Rev. **D90**(2014)121901). The fraction of vacua with a rank-4 gauge group (as in the Standard Model or SU(5) GUT models) is given by $e^{-O(1) \times h^{3.1} M}$, where M is a Calabi-Yau four-fold. Since the value of $h^{3.1}(M)$ can often be of order a few thousand, or even ten thousand, we see that vacua like ours are rarely found in the ensemble of string flux vacua, not just because of the small value of dark energy (fraction 10^{-120}) but also because of the rank-4 gauge group (fraction $e^{-O(1000)}$). Later, a group at MIT found (arXiv:1511.03209) that there is even a Calabi-Yau four-fold where $h^{3.1}(M) \sim 300,000$.

In a subsequent paper, arXiv:1506.08433 (JHEP **1511** (2015) 065), I also studied questions of practical interests in particle phenomenology. It turns out that the number of flux vacua with a rank-4 gauge group and an extra U(1) symmetry is about e^{-1000} smaller than the number of vacua with just a rank-4 gauge group. This article also provides a preliminary study of the distribution of U(1) symmetry breaking parameters, and that of Yukawa coupling constants.

There will be several different ways to think what those statistics mean. i) We might learn who we are by learning what other people (vacua) are like; that is philosophy. ii) One might use such statistics as a guiding tool in bottom-up model building activities. iii) The extremely small fraction of vacua like ours may be taken as an indication that our current understanding of string theory is not right somehow, or as a hint that some cosmological dynamics has played a role. iv) Some people will argue that the extremely small fraction of vacua like ours is not a problem because anthropic selection is at work, and v) others will argue that we should study statistics more carefully.

5.5 Dark Matter Map Begins to Reveal the Universe's Early History

Masamune Oguri



Wide-field imaging surveys allow us to directly map the dark matter distribution in the Universe, using the technique called weak gravitational lensing. Weak gravitational lensing is a general relativistic effect, and is a tiny distortion of distant galaxies induced by bending of the path of light rays. By detecting coherent distortions of galaxies due to weak gravitational lensing, we can reconstruct the distribution of dark matter which is not directly visible. Mapping dark matter with weak gravitational lensing requires accurate shape measurements of many distance galaxies, and hence it has been difficult to draw dark matter maps for the wide area of the sky.

The Hyper Suprime-Cam (HSC) is a new wide-field imaging camera installed on the Subaru 8.2-meter Telescope in Hawaii in 2012. The HSC is built by National Astronomical Observatory of Japan (NAOJ) in collaboration with several institutions including Kavli IPMU, ASIAA, and Princeton. The camera has a total of 870 Megapixels, covering a field of view of 1.8 square degrees. Its large field-of-view, high light collecting power, and exquisite image quality make it an ideal instrument for the analysis of weak gravitational lensing. To check its performance, we obtained a 2-hour exposure covering 2.3 square degrees of sky during the commissioning run, and reconstructed the dark matter distribution with weak gravitational lensing. The new dark matter map revealed nine clumps of dark matter. We confirmed that clusters of galaxies are associated with these clumps, which confirms the reliability of galaxy shape measurements, the analysis of weak gravitational lensing, and the resulting dark matter map. Interestingly, the number of the clumps is three times larger than the theoretical prediction based on the extrapolation of the analysis result of the cosmic microwave background, which hints a faster growth of dark matter fluctuations in the late Universe than the standard model prediction. Since the growth of structure is a sensitive probe of the expansion history of the Universe including the abundance and evolution of dark energy, analyzing dark matter map provides an important means of studying the accelerated expansion of the Universe.

This result (Miyazaki, Oguri, et al. 2015, ApJ 807, 22) demonstrated the power of HSC for mapping dark matter with weak gravitational lensing, in the sense that with just 2 hours commissioning observation we were able to identify such many dark matter clumps from the mass map. While the current analysis is limited by the small area, we are now conducting a large survey using the Subaru HSC, the HSC Subaru Strategic Program, to observe more than 1000 square degree of the sky. The survey started in 2014 and will be completed by 2020. The mass map for such very wide survey area should reveal whether the excess of the number of dark matter clumps is real or just a statistical fluke, and will give a much clearer view on the expansion history of the Universe.



The HSC image overlaid with contour lines showing the dark matter distribution from the analysis of weak gravitational lensing. (Credit: NAOJ/HSC Project)

5.6 Suppressing Star Formation in Quiescent Galaxies with Supermassive Black Hole Winds

Edmond Cheung



While there have been many recent studies addressing how galaxies shut off, or quench, their star formation, an equally interesting yet relatively unstudied question is how these quenched galaxies remain quenched. This is interesting because these quiescent galaxies often contain gas that—if left unimpeded—should cool and form stars. But since we know that quiescent galaxies have not formed a significant amount of stars since they’ve been quenched, there must be something that prevents this gas from cooling.

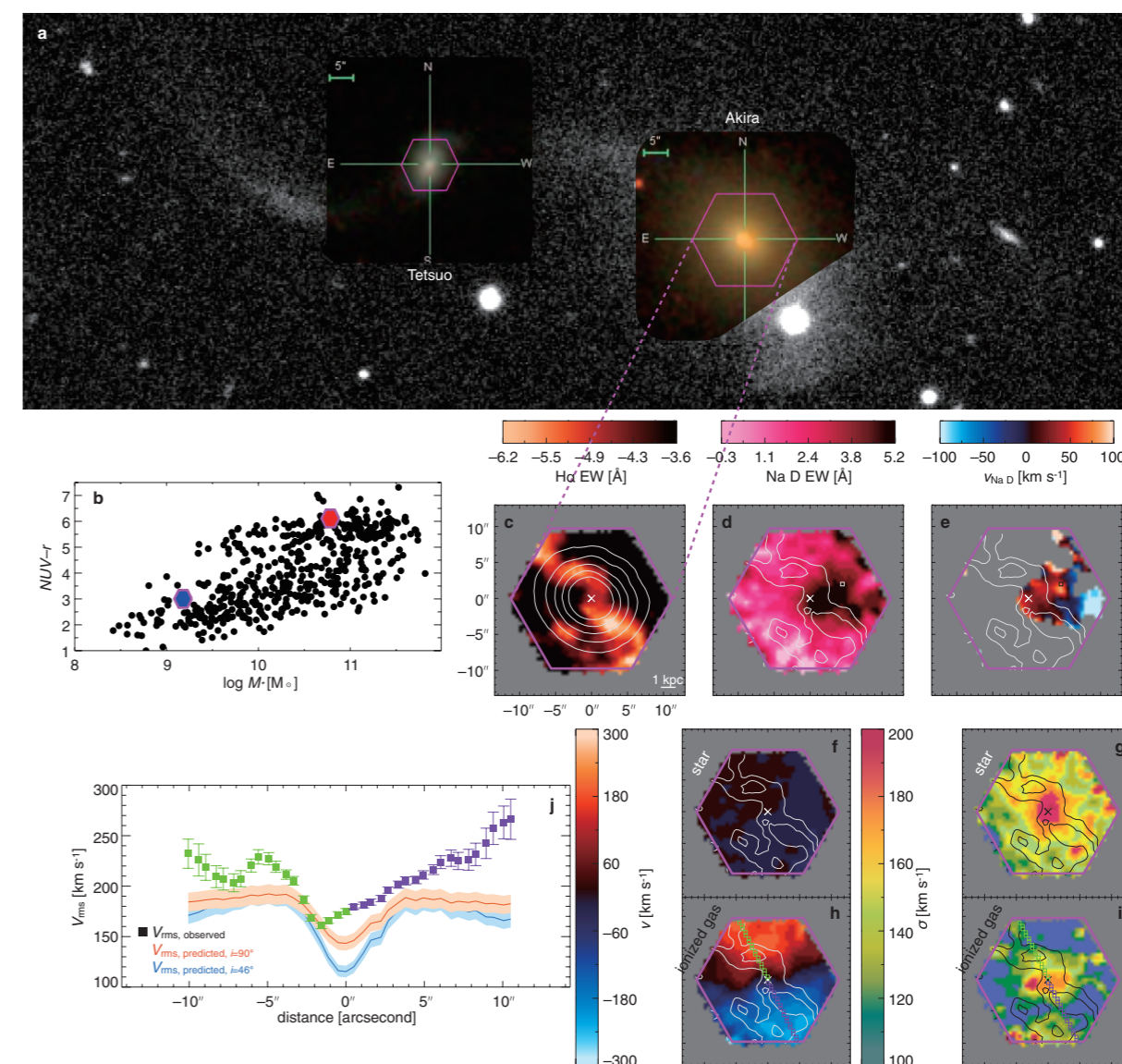
In the new study by Cheung et al. 2016, *Nature*, 533, 504 (<http://www.nature.com/nature/journal/v533/n7604/full/nature18006.html>), this ‘something’ has been found. Using the ongoing SDSS-IV MaNGA survey (<http://www.sdss.org/surveys/manga/>), Cheung et al. discovered a new class of quiescent galaxies—dubbed “red geysers”—that hosts outflowing winds powerful enough to heat ambient gas and suppress future star formation. These winds are manifested in bisymmetric emission features and are likely powered by their weakly-accreting supermassive black holes.

To highlight the key characteristics of this class, Cheung et al. focus on a prototypical red geysers, which they nicknamed “Akira”—a reference to the critically-acclaimed manga comic of the same name, and in homage to the MaNGA survey and the lead author’s current institute in Japan (Kavli IPMU). Akira is undergoing a minor interaction with another galaxy, which they’ve nicknamed “Tetsuo”—another character in the same manga comic as Akira; the SDSS image of the interaction is shown in panel a of the figure below, which is reproduced from the Cheung et al. 2016. According to merger simulations, Tetsuo is depositing cool gas into Akira, which is detected in redshifted Na D absorption (panels d and e). The expected star-formation from this cool gas, however, is absent: Cheung et al. find that the measured star-formation rate of Akira is much lower than what is expected given the amount of cold gas present. Thus something is prohibiting star formation in Akira—what is it?

Inspecting the ionized gas properties of Akira, Cheung et al. find an interesting bisymmetric emission pattern in H-alpha and other strong emission lines (panel c). These emission patterns roughly align with the ionized gas velocity gradient (panel h), suggestive of an outflow. To prove that the ionized gas is indeed in an outflowing wind, Cheung et al. had to disprove that the ionized gas is in a disk. Using the stellar dynamics of Akira (panels f and g), they obtain a tight constraint on its gravitational potential, from which they are able to predict the ionized gas kinematics in the case of a regularly rotating disk. They find that the observed ionized gas kinematics are significantly higher than the predicted ionized gas kinematics (panel j), indicating that the ionized gas is not in a disk.

Ruling out the disk interpretation, Cheung et al. developed a qualitative wind model that reproduces many of the features of the data, including the ionized gas velocity field and the ionized gas velocity dispersion field. They theorize that this outflowing wind is likely powered by the weakly-accreting supermassive black hole at the center of Akira, which is detected as a central radio point source in radio observations. They calculate that the energetic output from this low-luminosity active galactic nuclei (AGN) is sufficient to power this outflowing wind, which in turn, has enough energy to counterbalance the cooling of both the warm and cool gas within Akira, and thereby suppress star formation.

While Akira is an ideal case-study, perhaps the most exciting aspect of this study is the fact that there are many more red geysers. Red geysers make up about 10% of quiescent galaxies at moderate stellar masses (2×10^{10} solar masses), which could mean that red geysers may be responsible for maintaining the low levels of star formation in quiescent galaxies.



5.7 Statistical Constraints on Mass Distribution Enabled Through Citizen Science



Anupreeta More

Strong gravitational lensing - the formation of multiple, magnified images of background objects due to the deflection of light by massive foreground objects along the line of sight - is a very powerful astrophysical and cosmological tool. The search for gravitational lenses is a needle-in-a-haystack problem. Several automated lens finding algorithms have been developed so far (e.g. Seidel & Bartelmann 2007; More et al. 2012, M12; Gavazzi et al. 2014, G14), but they can not simultaneously capture the myriad types of lenses that are known to exist. Moreover, many lensed images appear similar to features found commonly in galaxies (such as spiral arms) or to artefacts in astronomical images (scattered light around stars). Almost all lens finding algorithms find it difficult to distinguish these from the real lenses and thus suffer from a high rate of false positive detections.

Since humans are known to perform better than machines at such tasks, we launched Space Warps (spacewarps.org), a citizen science project to discover gravitational lenses. The community of world citizens surveyed all of the data from the Canada-France-Hawaii Telescope Legacy Survey (CFHTLS) with the goal of finding new lenses that had been missed by automated algorithms such as ArcFinder (M12) and RingFinder (G14). In total, we identified 29 new high priority lens candidates which were undetected both serendipitously or by automated lens searches in the past.

The scientific goal of this search was to understand the completeness of the CFHTLS lens sample, which when accounted for, allows us to do statistical studies. For example, the image separation distribution can probe the mass distribution of the lens population as shown in the adjacent Figure 1. With this method, we can also test how the presence of baryons (i.e. gas, stars) affects the dark matter density profile in the inner few kiloparsecs (e.g. see M12 for feasibility). This is one of the least understood aspects of dark matter on the theoretical front.

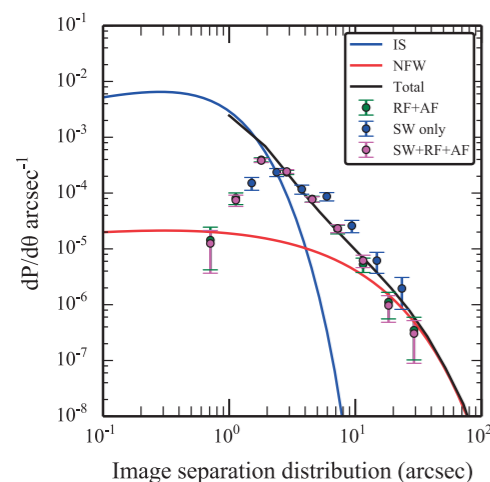


Fig 1: Image separation distribution. The three curves correspond to analytical predictions for different types of lens mass distributions. The green points are lens candidates from automated algorithms (ArcFinder: M12, RingFinder: G14). The blue points are new Space Warps (SW) candidates. The final combined lens sample (magenta points, SW+RF+AF) is best represented by a composite model ("Total", black curve) that accounts for both baryons and dark matter providing first statistical constraints for massive galaxy groups (3-10 arcsec).

References

- [1] Seidel, G., & Bartelmann, M. 2007, A&A, 472, 341
- [2] Gavazzi, R., Marshall, P.J., Treu, T., & Sonnenfeld, A., 2014, ApJ, 785, 144
- [3] More, A., Cabanac, R., More, S et al. 2012, ApJ, 749, 38
- [4] More, A., Verma, A., Marshall, P.-J., et al. 2016, MNRAS, 455, 119

5.8 Evidence of Halo Assembly Bias in Massive Galaxy Clusters

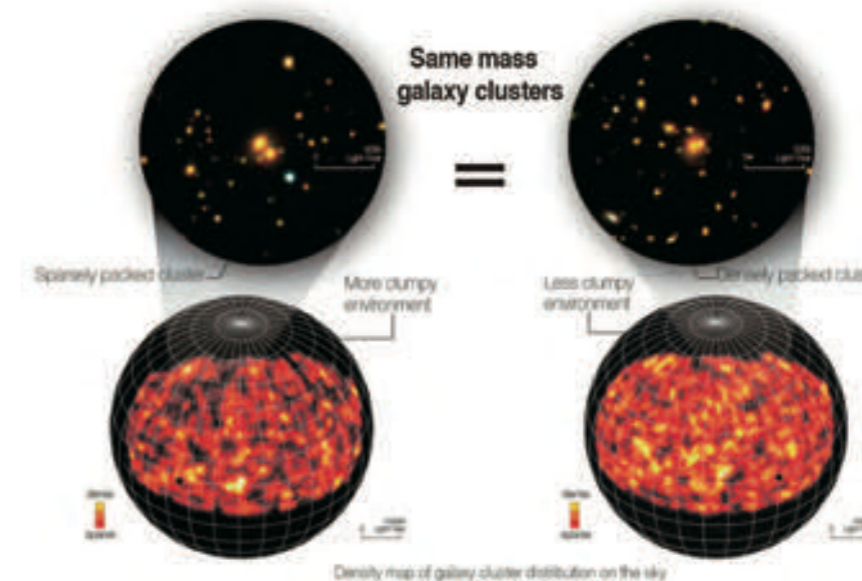


Hironao Miyatake

The distribution of dark matter, which makes up about 80% of matter in the Universe, contains cosmological information such as the amplitude of matter power spectrum and energy density of the Universe. However, since dark matter cannot be observed directly, we need to use galaxy or galaxy cluster distribution. In the standard scenario of the cosmic structure formation, dark matter first collapses into a halo due to gravitational instability and then galaxies and galaxy clusters are formed in halos. Therefore, there is a difference between the dark matter distribution and galaxy or galaxy cluster distribution, which is called halo bias. When extracting cosmological information from galaxy distribution, we need to correct for halo bias. Otherwise, cosmological constraints will be biased.

In observational studies, it has been assumed that halo bias solely depends on halo mass. However, analytical and numerical studies showed that halo bias can also depend on other halo properties such as formation time and concentration of the dark matter halo profile, which is called halo assembly bias. If assembly bias exists, ignoring assembly bias results in biased cosmological constraints.

In this work, we firstly found the evidence of halo assembly bias in massive galaxy clusters. We divided about 9,000 Sloan Digital Sky Survey (SDSS) redMaPPer clusters into two subsamples based on the average projected cluster-centric separation of member galaxies. In order to get rid of mass dependence of halo bias, we measured weak lensing signals at small scales, and confirmed that the subsamples have the consistent masses. We then looked into large-scale weak lensing signals and clustering signals, and found that the difference at 2.5σ and 4.4σ , respectively. This result indicates the presence of halo assembly bias. However, tests on mock catalogs need to be made to confirm that astrophysical systematics with weak lensing masses, or optical cluster finding are not at play here.



5.9 New Test by Deepest Galaxy Map Finds Einstein's Theory Stands True

Teppei Okumura

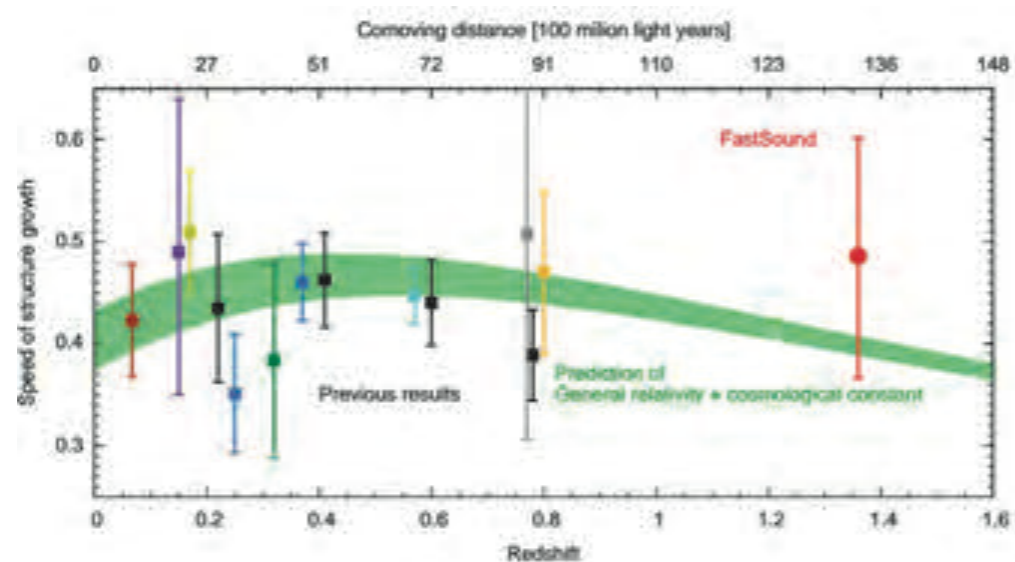


Since it was discovered in the late 1990s that the universe is expanding at an accelerated rate, its origin, called dark energy, has been one of the most puzzling problems in astronomy. The mysterious dark energy could be a cosmological constant, as proposed by Einstein, or his theory of general relativity, which says gravity warps space and time, could be breaking down.

To study the origin of the acceleration, a powerful observational tool is a galaxy redshift survey, which traces the large-scale structure of the universe. In a galaxy survey, distances to galaxies can be estimated by measuring redshifts. However, the measured redshifts include Doppler shifts from not only the cosmic expansion but also the peculiar velocities of galaxies themselves. It thus induces anisotropies in the observed galaxy distribution along the line of sight, and measuring the anisotropies provides us with information of the velocity field of the universe. If the gravity's law is deviated from general relativity, the structure in the universe also grows differently. Hence, one can distinguish different gravity theory models directly using galaxy redshift surveys. However, such surveys had been limited only at the relatively nearby universe, within 10 billion light years from the earth.

The FastSound galaxy survey has used the near-infrared Fiber Multi Object Spectrograph (FMOS) mounted on the Subaru Telescope and has obtained the 3D map of the large-scale structure from 3000 spectra of emission line galaxies over 20 square degrees of the sky at the very distant universe, 13 billion light years from us, which had never been probed before for a cosmological purpose. In this work, we analyzed the galaxy clustering from the data of the FastSound Survey, and detected a clear anisotropic signal caused by the velocity field. The confidence level of the detection was as high as 99.997%. By statistically analyzing the detected anisotropies, we found that even far into the universe, general relativity is valid, giving further support that the expansion of the universe could be explained by a cosmological constant. The figure shows the constraints on the velocity field obtained from various galaxy surveys at the nearby universe as well as that from the FastSound survey, in comparison to the prediction by Einstein's theory of general relativity in green.

The Prime Focus Spectrograph, which is currently under construction led by Kavli IPMU, is expected to provide much tighter constraint on gravity theory even at the more distant universe.



References

- [1] T. Okumura et al., PASJ, 68, 38 (2016)
 [2] IPMU Press Release, "New test by deepest galaxy map finds Einstein's theory stands true"

5.10 Photometric Identification of First Supernovae: Multicolor Light Curve Simulations

Alexey Tolstov



Nowadays telescopes detect about 10 supernovae (SNe) per day in the nearby Universe. All these SNe lead to the formation of metal-rich stars in billions of years after the explosion. In the coming years we expect the detection of a first SNe in the distant Universe or metal-free gas pockets. Their progenitors are stars of a first generations (known as Pop III) formed in a zero-metal environment. The SN explosions of first stars lead to the formation of metal-poor stars in next generation. There are theoretical studies that derive the properties of the first stars from the abundance ratios of metal-poor stars. Studies have clarified that the abundance patterns of the carbon-normal enhanced metal-poor stars are well reproduced by SN explosions with main-sequence masses M_{MS} of $< 100 M_{\odot}$. For most of carbon-enhanced metal-poor (CEMP) stars with $[Fe/H] < -3$ and hyper metal-poor (HMP) stars ($[Fe/H] < -5$), the carbon enhancements require faint SNe which eject such a small mass of ^{56}Ni as $M(^{56}Ni) < 10^{-2} M_{\odot}$.

How to identify first SNe and how do they explode? To answer on these questions we performed the numerical simulations of multicolor light curves from shock breakout to ^{56}Co decay in realistic models that include the observed abundance patterns of metal-poor stars. We calculate the light curves of zero and solar metallicity progenitors with the main-sequence masses $M_{MS} = 25, 40, 100 M_{\odot}$ and the explosion energies corresponding to SNe ($E_{51} \equiv E/10^{51} \text{ erg} = 1$) and hypernovae (HNe) ($E_{51} \geq 10$). For calculation of the light curves multigroup radiation hydrodynamic code is used. Aspherical effects are taken into account in the mixing-fallback model, which parameters are chosen around the values which provide the best fit to the elemental abundances of metal-poor stars.

Blue supergiants are typical presupernovae for Pop III core-collapse SNe with $M_{MS} \lesssim 40-60 M_{\odot}$ and their structure determines the properties of the light curves. First SNe are bluer, shorter and fainter than ordinary SNe (Figure 1, top panel). The most important result is the flat color evolution curve with typical values of B-V color from 0.0 to 0.6 during the plateau phase can be used as an indicator of Pop III and low-metallicity SNe (Figure 1, bottom panel). In contrast, all solar metallicity models show gradual reddening during the plateau. The low amount of ^{56}Ni used to explain CEMP stars with mixing-fallback leads to sharp luminosity decline after the plateau phase. This behavior of light curve can also be a sign of a low-metallicity progenitor.

The direct detection of Pop III core-collapse SNe is hardly possible at high redshift, but Pop III hypernovae will be visible to the James Webb Space Telescope (JWST) at $z \sim 10-15$. HSC/Subaru can detect Pop III SNe in metal-free gas pockets ($z \sim 2$). The results of our simulations are suitable not only for the identification of Pop III SNe, but also for low-metallicity SNe in the nearby Universe. There are a number of galaxies in the local Universe with metallicities close to $Z \sim 10^{-5} - 10^{-4}$ and, taking into account inhomogeneous galaxy regions, there could be a good chance of identifying and studying these objects.

Reference

- [1] Tolstov, A., Nomoto, K., Tominaga, N., Ishigaki, M. N., Blinnikov, S., Suzuki, T., The Astrophysical Journal, 821, 124, (2016).

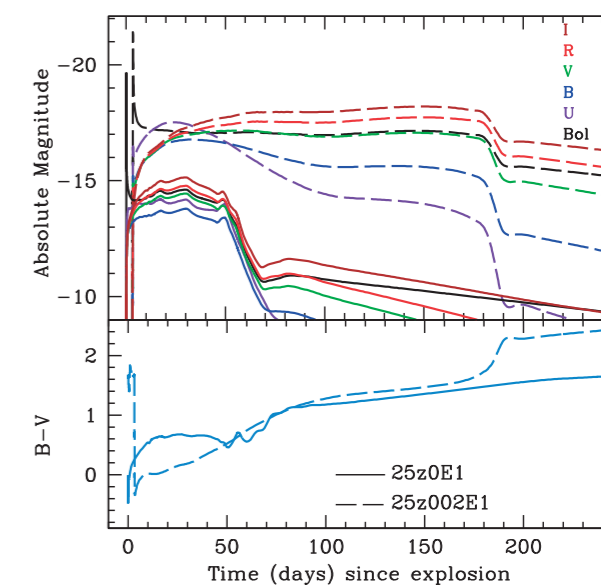


Figure 1: Top panel: bolometric and UBVR light curves for zero (solid line) and solar metallicity (dashed line) models with the main-sequence mass $M_{MS}=25M_{\odot}$ and the explosion energy $E_{51}=1$. Bottom panel: B-V color evolution.

5.11 The Host Galaxy of a Fast Radio Burst

Naoki Yasuda

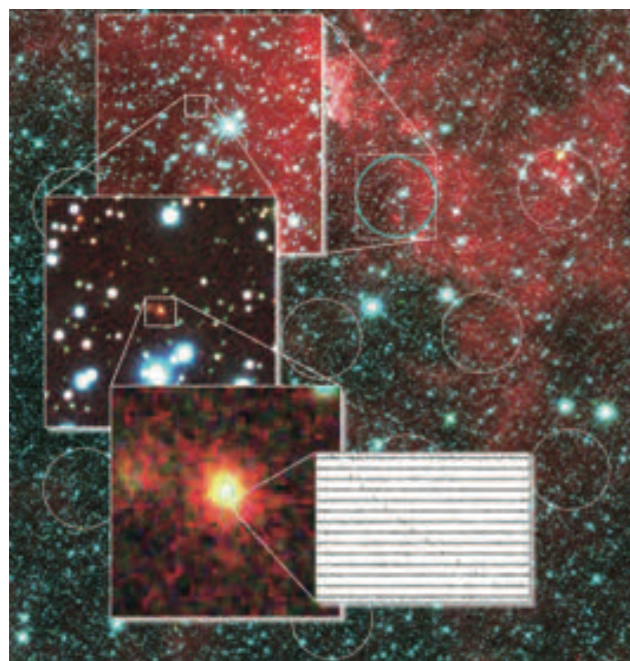


Fast Radio Bursts (FRBs) are bright radio flushes lasting only a few milliseconds. First event was reported in 2007 and only 16 have been detected so far. Their origin and where they are coming from are unknown. However, FRB shows a frequency-dependent dispersion, a delay in the radio signal caused by how much material it has gone through. From this delay we can estimate the product of number density of electrons and the distance along the line of sight. This is called as dispersion measure (DM). Pulsar also showing DM but DM of FRB is much larger than that of Pulsar. This suggests FRB is not Galactic source but extragalactic (outside of our Milky Way galaxy) origin. The distribution of their location on the sky is also suggesting they are coming from extragalactic.

In the past, FRBs have been found by re-analyzing the archival data taken months or even years before. So it is too late to do follow up observations. To remedy this, researchers at Parkes radio telescope, the University of Tokyo, and National Astronomical Observatory of Japan has started international collaboration to detect FRBs within seconds and to immediately alert other telescopes to follow them up.

On April 18, 2015, FRB150418 was detected at 64-m Parkes radio telescope in Australia. We have taken images of the area where this FRB occurred a few days after the initial radio flush with Subaru telescope. We did not find any transient objects associated with this FRB. About a half year later, however, a group analyzing the data taken by another radio telescope ATCA (Australia Telescope Compact Array) has identified variable compact source. This source was seen 2 hours after the FRB and fading to constant flux level over 6 days. The probability of chance coincidence of this kind of sources to occur in the field of FRB is low (1/1000) and we concluded that it is the afterglow from the FRB event. ATCA is an interferometric telescope and its image resolution is much higher than Parkes telescope and the location of the FRB was determined with the accuracy of 1 arcsec. On Subaru images we have taken before, there is an elliptical galaxy at the location of the FRB. We have made spectroscopic observation of this elliptical galaxy and determined its redshift as $z=0.492$. This study is the first evidence that FRB is a phenomena occurring at the cosmological distance.

This study also gives important cosmological implication. According to the latest standard cosmological model, the Universe is believed to be made of 70% of dark energy, 25% of dark matter and 5% of 'ordinary' matter or baryon. However, through the observation of stars, galaxies and hydrogen gas, only half of them have been observed. The rest could not be seen directly and so has been referred to as 'missing baryon'. The measurement of the distance to FRB combined with its DM gives us the electron density of the Universe and its value well matches with the value expected from cosmological model. This means 'missing baryon' problem has been resolved.



Background is a wide-field composite false-color RGB image of WISE mid-infrared satellite, over plotted with the half-power beam pattern of the Parkes multi-beam receiver. Other images are composite of Subaru r-band, Subaru i-band, and Palomar 200-inch Ks-band and successive zoom on the fading ATCA radio transient location. The final inset is a waterfall plot of the FRB signal showing the characteristic quadratic time-frequency sweep.

5.12 Beginning of the Universe: LiteBIRD

Hajime Sugai



How was the beginning of our universe? With the discovery and detailed observations of cosmic microwave background (CMB), we know that there existed a hot big bang. This event however was not close enough to the beginning to tell us at all why the universe is uniform, isotropic, and so flat as observed. Inflation theories have been proposed since 1980s in order to overcome these problems by introducing an exponentially expanding phase before the big bang. Primordial gravitational wave is predicted by inflation theories, and *Background Imaging of Cosmic Extragalactic Polarization 2* (BICEP2: operated at South Pole) announced in 2014 March their detection of its imprint in the spatial pattern of CMB polarization. Although this was later questioned as a small residual foreground contamination from dust emission in our Galaxy, it gave us some feelings that our technologies are getting closer to the level in which we can expect to finally reveal the real beginning of our universe (Figure 1). In 2016 February *Laser Interferometer Gravitational-Wave Observatory* succeeded in detecting the gravitational wave produced by the merging of 36 and 29 solar-mass blackholes. Although this differs from the primordial gravitational wave caused by a tiny quantum fluctuation in spacetime, it was encouraging in that the existence of gravitational wave was now directly proven.

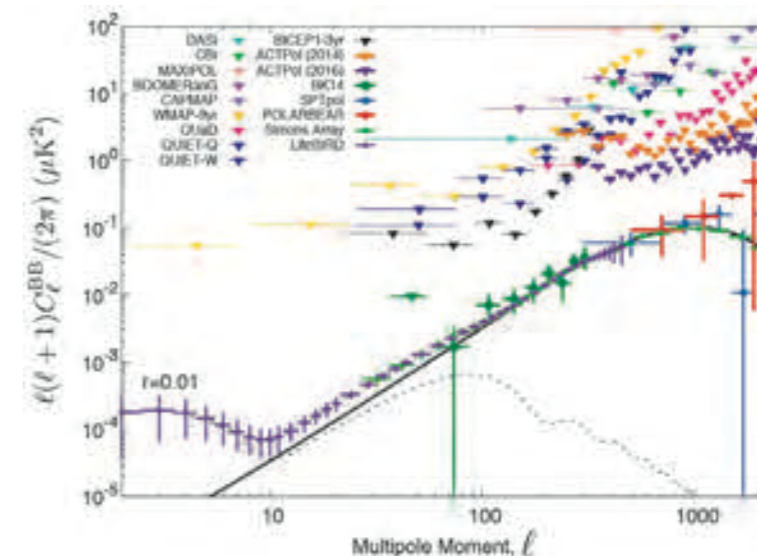


Figure 1: C_l^{BB} is B-mode power for each multipole moment ($l = 180/(\theta[^\circ])$), where B-mode is the strength of spiral-like spatial pattern of polarization distribution. Circles are measured values except for LiteBIRD and Simons Array, where they are predicted values for the case of tensor-to-scalar ratio (relative strength of gravitational wave) r equal to 0.01 as an example. Triangles are obtained upper limits. The lower dashed curve is the expected power spectrum by inflation, while the solid curve is due to gravitational lensing. Figure courtesy of Y. Chinone (UC Berkeley).

The idea of *Lite (Light) satellite for the studies of B-mode polarization and Inflation from cosmic background Radiation Detection* (LiteBIRD^{1,2,3}) was originally established in 2008 as a form of LiteBIRD working group. Compared with ground-based measurements of CMB polarization, measurements from space have advantages: (1) covering the whole sky, which is important since a larger-scale polarization pattern gives the imprint more purely with much less contamination from gravitational lensing, and (2) free from atmosphere, providing higher sensitivities and stabilities. Three-year measurements of linear polarization with more than 2000 superconducting transition edge sensors cooled down to 100 mK by adiabatic demagnetization refrigerators will enable us to detect the imprint of primordial gravitational wave down to two orders of magnitude lower level than that claimed by BICEP2. LiteBIRD was down-selected in 2015 September, through the mission definition review, as one of strategic large mission candidates by Institute of Space and Astronautical Science (ISAS). Our activities have been accelerated with "Grant-in-Aid for Scientific Research on Innovative Areas: Area number 2705". We are targeting the middle of 2020s for the launch to the Lagrangian L2 orbit.

Challenges on LiteBIRD come from the requirements on accurate subtraction of the foreground emission mainly from our Galaxy, including the synchrotron and the dust emission components. The CMB has its emission peak at millimeter wavelength, as described with 2.725 K blackbody. In order to extract the CMB subtracting the Galactic emission components to 1% level accuracy in each spatial element, LiteBIRD covers the wide frequency range of 35 GHz to 450 GHz to use spectral shape differences for the component separation. In order to cover this wide frequency range, we have adopted to have two separate frequency-range telescopes as our basic optics configuration⁴: a low frequency telescope (LFT) for 35 to 270 GHz and a high frequency telescope (HFT) for 240 to 450 GHz. The whole optical system is cooled down to 10 K to minimize the thermal emission.

Particular cares are taken for the main telescope, LFT, whose frequency range covers around the CMB emission peak as well as the Galactic synchrotron emission. We have designed crossed-Dragone optics (Figure 2), which provides a compact configuration with a wide field of view of $10^\circ \times 20^\circ$. Both of the primary and secondary reflectors have anamorphic non-spherical surfaces. In contrast to observations on individual astrophysical objects^{5,6} such as with *Atacama Large Millimeter/submillimeter Array*, LiteBIRD requires only coarse spatial resolution of ~ 0.5 but requires good-shaped, stable, and well-calibrated beam patterns down to -50dB level at the low temperature so that we can extract a subtle spatial pattern of polarization. The mirror surface shape error required based on optical design including image quality evaluation is within 30 micron (rms). We also need to optimize hood/baffle designs to avoid stray light, using the minimal mass of absorbing materials.

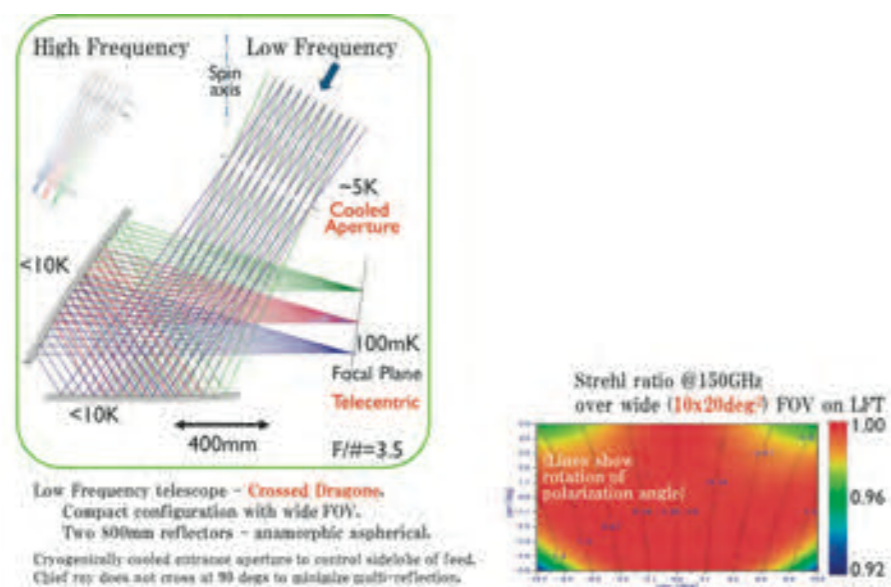


Figure 2: Optical design of the Low Frequency Telescope (LFT) for 35 to 270 GHz. The direction of telescope line of sight is 30° from the satellite spin axis. The LFT and HFT will be aligned in parallel within 0.1° accuracy so that both telescopes observe the same sky direction simultaneously. The lower right panel shows the distribution of Strehl ratio of Point Spread Function for each point in the FOV of $10^\circ \times 20^\circ$ for 150 GHz as an example. Figure taken from paper[4].

A continuously rotating half-wave plate modulator⁷ (Figure 3) is a key component on reducing systematic errors such as $1/f$ noise. This polarization modulator is placed at the aperture position, facing directly to the sky, and separates the sky linear polarization from the artificially produced one. The use of superconducting magnetic bearing for the rotation mechanism has already been successful in actual CMB measurements such as the balloon-borne *E and B Experiment* (EBEX). In order to use this technique in high-sensitivity measurements in the satellite telescope, efforts on developments are being made such as for obtaining a 1% level uniformity of magnetic fields along a 400 mm diameter ring, reducing heat production

down to 3.5 mW, constraining the magnetic leakage onto detectors to a few tenths of 1 Gauss, and assuring the lifetime of 3-5 years. The anti-reflection coating on the half-wave plate is another challenge for the wide frequency range of LiteBIRD. This will be resolved most likely with some extension of the presently available technologies of moth-eye structures or multi-layer coating on the sapphire surface.

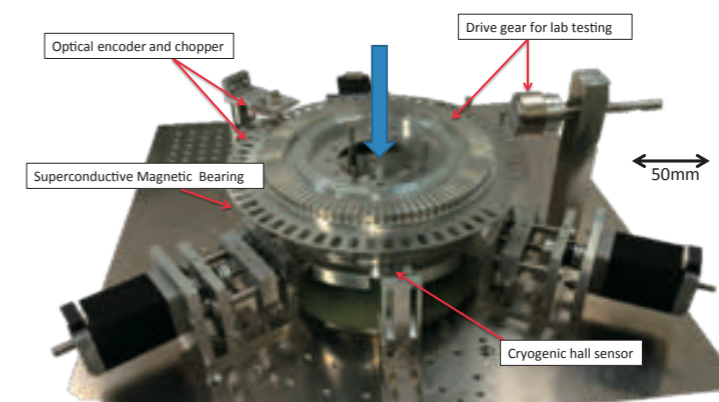


Figure 3: Prototype of LiteBIRD polarization modulator with 65 mm diameter aperture. Incident light enters from up in this figure. Superconductive magnetic bearing consists of ring-shaped NdFeB permanent magnet and bulk YBCO superconductor. The modulator is cooled down to 5 K to minimize the thermal noise. The half-wave plate is rotated at around 1 rotation per second. Figure taken from paper[7].

The Japan team, with Kavli IPMU as one of core institutions, collaborates with the US team. The US team is in charge of detectors, and now in the concept study phase called Phase A of National Aeronautics and Space Administration "Partner Mission of Opportunity". We take close interaction with them focusing particularly on establishing clear interfaces and requirements, as well as relevant technical discussion such as on scan strategy and cosmic ray removal. Touching the inflation era is now targeted not only by Japan and the US but all over the world such as in the improved *Cosmic Origins Explorer* (COE+) proposal for the European Space Agency's "M5" for a medium sized mission, and perhaps is the last (actually "first" in the universe time sequence!?) frontier of human beings' researches of the universe.

References

[1] <http://litebird.jp/eng/>
 [2] Matsumura, T. et al., 2016, Journal of Low Temperature Physics, 184, 824–831. "LiteBIRD: Mission Overview and Focal Plane Layout"
 [3] Ishino, H., et al., 2016, Proc. SPIE 9904, Space Telescopes and Instrumentation 2016: Optical, Infrared, and Millimeter Wave, 99040X 1-8. "LiteBIRD: lite satellite for the study of B-mode polarization and inflation from cosmic microwave background radiation detection"
 [4] Sugai, H., Kashima, S., Kimura, K., Matsumura, T., Inoue, M., Ito, M., Nishibori, T., Sekimoto, Y., Ishino, H., Sakurai, Y., Imada, H., Fujii, T. 2016, Proc. SPIE 9904, Space Telescopes and Instrumentation 2016: Optical, Infrared, and Millimeter Wave, 99044H 1-7. "Optical designing of LiteBIRD"
 [5] Saito, T., Iono, D., Yun, M. S., Ueda, J., Nakanishi, K., Sugai, H., Espada, D., Imanishi, M., Motohara, K., Hagiwara, Y., Tateuchi, K., Lee, M., Kawabe, R., 2015, The Astrophysical Journal, 803, 60 (34pp). "ALMA Multi-line Observations of the IR-bright Merger VV 114"
 [6] Miura, R. E., Espada, D., Sugai, H., Nakanishi, K., Hirota, A., 2015, Publications of the Astronomical Society of Japan, 67, L1-L6. "Witness of gas infall and outflow in the young starburst dwarf galaxy NGC 5253"
 [7] Matsumura, T. et al., 2016, SPIE 9904, "Polarization modulator for LiteBIRD": http://litebird.jp/wp-content/uploads/2012/03/20160626_LiteBIRD_PMU_v011.png

5.13 Current Status of Subaru Prime Focus Spectrograph Instrument Development



Naoyuki Tamura

Recently the prime focus of the Subaru Telescope in Hawaii has been upgraded with a new instrument, to push the cutting edge science further forward taking the full advantage of the unique wide field of view. Hyper Suprime-Cam (HSC)[1], the successor of Suprime-Cam, is a very wide-field imager with a 1.5-degree diameter field of view “paved” by 116 2K × 4K CCDs. It has been in the science operation since 2014 and a 5-year, 300-night survey is on-going in the framework of Subaru Strategic Program (SSP). There is another instrument upcoming yet to the Subaru prime focus: PFS (Prime Focus Spectrograph) is a very wide-field, massively multiplexed, optical and near-infrared (NIR) spectrometer [2]. The focal plane will be equipped with 2394 reconfigurable fibers instead of the large CCD array of HSC over the 1.4-degree wide hexagonal field of view. The Spectrograph System (SpS) has been designed to cover a wide range of wavelengths simultaneously from 380nm to 1260nm in one exposure. The HSC and PFS are under the umbrella of the “Subaru Measurement of Images and Redshifts (SuMIRe)” project (PI: Murayama) aiming to conduct deep and wide imaging and spectroscopic surveys exploiting the large light-collecting power and wide field coverage of the Subaru Telescope. It should be emphasized that HSC and PFS will conduct the surveys on the same patches of the sky using the same 8.2m telescope, enabling joint analyses of the images and spectra with good understandings of various systematics in the data.

The instrument development is in the phase of construction, integration and test for the subsystems as the design are getting finalized: After the project Conceptual Design Review in 2012 and Preliminary Design Review in 2013, the Spectrograph System (SpS) successfully passed the Critical Design Review (CDR) in 2014 and the team has been in the phase of construction, integration and test. The successful CDR of Prime Focus Instrument (PFI) took place in March 2015, and then the fiber positioner system, one of the subcomponents of PFI, passed the delta CDR in June 2015. Subsequently, the mass production of the robotic fiber positioners and other manufacturing processes started. The Metrology Camera System (MCS) was also successfully approved in the CDR in September 2015 and delta CDR in December 2015, and the constructions and integrations are underway. The telescope part of the fiber cable subsystem will be reviewed in the fiscal year of

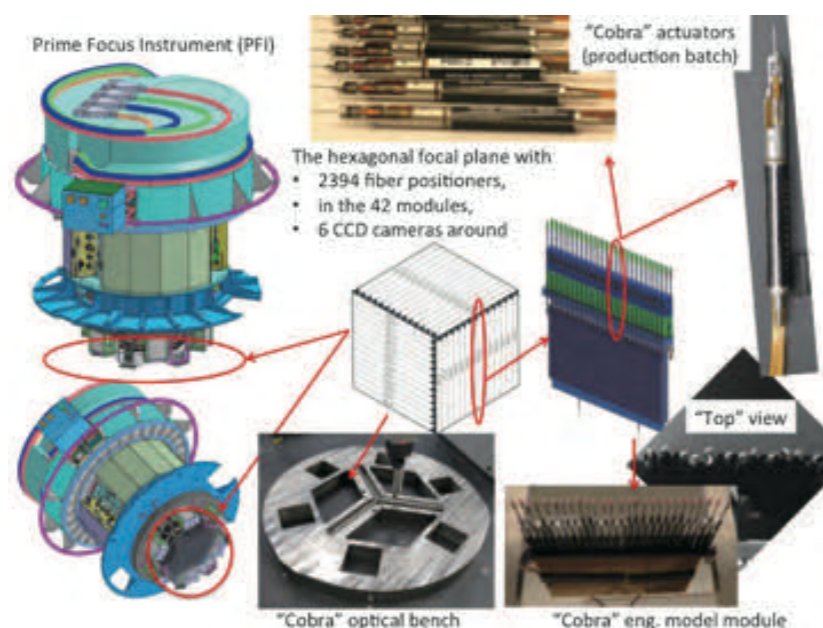


Figure 1: A schematic view of the PFS focal plane to be equipped with the 2394 fibers and Cobra actuators. Several photos of the real hardware components are also shown: The production-batch Cobra actuators (top right), a Cobra module with the engineering model actuators populated (bottom right), and the Cobra optical bench in process which is to accommodate 42 Cobra modules.

2016 with outputs from the ongoing prototyping process. The project is envisioning to start the subsystem deliveries to the Subaru Telescope observatory in Hawaii from 2017 and undertaking system integration in 2017-2018 to carry out on-sky engineering operations in 2018-2019 and start operations for scientific use before 2020. Accordingly plans have been steadily and rapidly developed about the integration of the delivered subsystems into a single instrument at the observatory and subsequent on-sky commissioning observations that are expected in 2017-2018.

In parallel, the science team are actively planning a PFS survey to be proposed in the framework of SSP for ~300 nights over ~5 years of the Subaru Telescope [3]. With the initiatives of the members of Kavli IPMU such as Murayama and Takada, a science workshop was organized at National Astronomical Observatory of Japan (NAOJ) in Tokyo in July 2015¹ where ~90 people participated from domestic institutions and discussed various topics in the three “pillars” of PFS science: Cosmology, galaxy & AGN evolution, and Galactic Archaeology. More informal workshops focusing on the PFS galaxy & AGN evolution science also took place in May 2015 at NAOJ and November 2015 at Kavli IPMU. In December 2015, there was an HSC AGN science workshop at Kagoshima University where substantial amount of time was spent for discussions about follow-up spectroscopy using PFS. Since the combination of upcoming spectra from PFS with HSC images are so powerful, there are many interesting scientific topics and proposals of observation programs. Although this means the presence of packaging challenges into a given amount of telescope time, it is a good chance to maximize outputs from the PFS SSP survey. The team is continually discussing the plan to develop it into the form of a proposal to SSP at the end.

In the PFS project, an international collaboration is working together for the instrument development and survey planning. In December 2015, a consortium of five Chinese institutes² joined the PFS collaboration as a full member. To make the collaboration even stronger and to further improve the chance of success of instrument development and survey science, we are still looking for new partners. There are a few groups and institutes as candidates with which the PFS steering committee is negotiating.

References

- [1] S. Miyazaki, *et al.* Proc. SPIE, Ground-based and Airborne Instrumentation for Astronomy IV, Volume 8446, article id. 84460Z, 9 pp. (2012)
- [2] N. Tamura, *et al.* Proc. SPIE 9908, Ground-based and Airborne Instrumentation for Astronomy VI, 99081M (9 August 2016)
- [3] M. Takada, *et al.* Publication of Astronomical Society of Japan, Volume 66, Issue 1, id.R1 (2014)

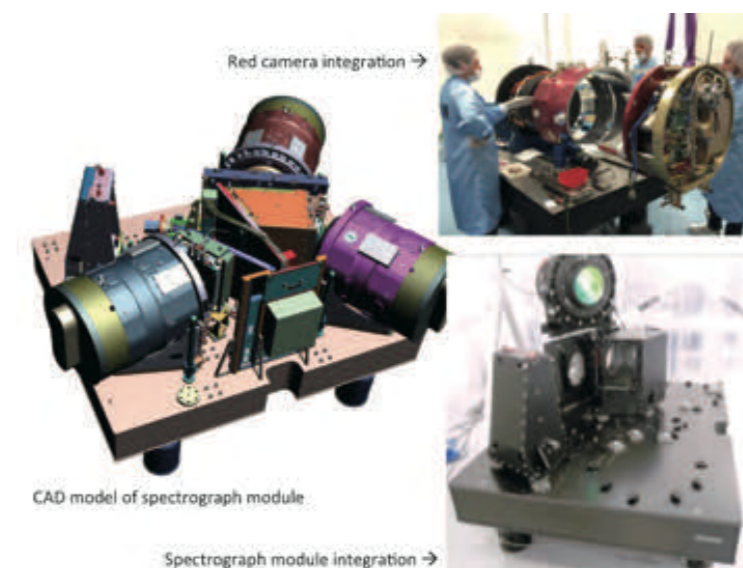


Figure 2: A CAD model of the spectrograph module (left), integration process of the red camera assembly (top right), and integration process of the entire spectrograph module (bottom right).

¹ <http://pfs.ipmu.jp/blog/2015/08/p39>

² Another institute joined in 2016, so the consortium consists of six institutes.

5.14 Search for Majorana Neutrinos with KamLAND-Zen

Alexandre Kozlov



Existence of non-zero neutrino mass established by neutrino oscillation experiments (Super Kamiokande and KamLAND) is the first solid evidence of physics beyond the Standard Model (SM) of particle physics. Despite of great success, oscillation experiments alone cannot help us to measure absolute value of the neutrino mass. This task can be accomplished by observing neutrinoless double-beta ($0\nu\beta\beta$) decay which is lepton number violating nuclear process predicted by SM extensions (Figure 1). Moreover, observation of the neutrinoless $\beta\beta$ decay would also confirm that leptogenesis [1] is true explanation for baryon asymmetry of the Universe (dominance of matter over anti-matter).

Experimental search for this rare decay is highly challenging task that requires: a large amount of certain isotope (^{136}Xe , ^{130}Te , ^{76}Ge), and extremely low background detector with a high energy resolution. In calorimeter-type detectors, such as KamLAND, neutrinoless $\beta\beta$ decays would produce a peak at the Q-value of the nuclear decay, distinguishable from conventional $2\nu\beta\beta$ decays which have a continuous energy spectrum (Figure 2).

KamLAND-Zen is the world's largest-to-date double-beta decay experiment which exploits the existing infrastructure (data-acquisition system, photo-sensors) and radio-purity of the 1000ton liquid scintillator KamLAND detector [2]. The first part of KamLAND-Zen experiment was started in year 2011 and successfully completed by the end of year 2015. It consisted of 13 tons of xenon-loaded ultra-radio-pure liquid scintillator confined in a 3.08-m-diameter spherical inner balloon (IB) located at the centre of the KamLAND detector where the external γ -ray background is the lowest (Figure 3). The IB was made of a 25- μm -thick highly transparent Nylon film while the liquid scintillator contained $(2.91\pm 0.04)\%$ by weight of isotopically enriched ^{136}Xe gas (320-380kg). After the end of the first part of experiment, called KamLAND-Zen 400, xenon gas was fully recovered from the liquid scintillator, purified and stored underground for further use. In the data set collected during the 2011-2015-year period we found no event excess over the background expectation. This result allowed us to obtain a lower limit of $T_{1/2}^{0\nu} > 1.07 \times 10^{26}$ yr (90% C.L.) on the ^{136}Xe $0\nu\beta\beta$ decay half-life corresponding to upper limits on the effective Majorana neutrino mass in the range of 61 – 165meV (Figure 4) depending on choice of model used to calculate nuclear matrix elements (NME) [2]. For most optimistic NMEs the effective Majorana neutrino mass limit reached the bottom of the quasi-degenerate neutrino mass region. At the beginning of the experiment sensitivity of the KamLAND-Zen 400 $0\nu\beta\beta$ -decay search was strongly limited by unexpected background from decay of $^{110\text{m}}\text{Ag}$ ($Q=3\text{MeV}$, $\tau=1\text{year}$) originated from the Fukushima nuclear accident fallout in 2011. Most of $^{110\text{m}}\text{Ag}$ was later removed during purification

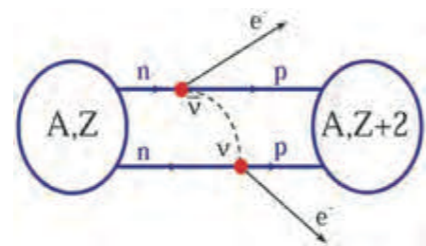


Figure 1

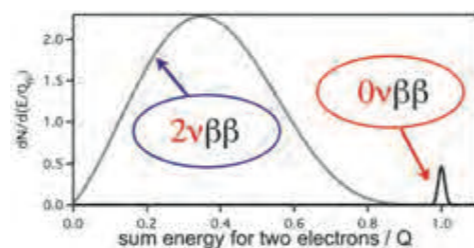


Figure 2

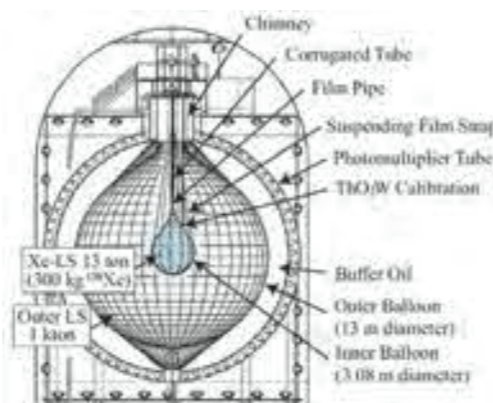


Figure 3

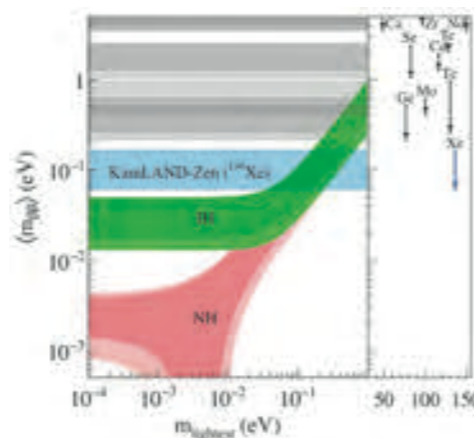


Figure 4

campaign that continued for 18 months. Other background contributions were caused by ^{214}Bi β^- -decay occurred in tiny dust particles attached to the surface of IB, decay of muon spallation products (mainly ^{10}C β^+ -decay with $Q=3.6\text{MeV}$) and by the high energy tail of the $2\nu\beta\beta$ -decay event distribution (Figure 5).

Just recently we achieved substantial progress in developing of a new algorithm to suppress the background caused by muon spallation. The latest $T_{1/2}^{0\nu}$ published in [2] was obtained by using a triple-coincidence tag of a muon, a neutron identified by neutron-capture γ -rays, and the ^{10}C decay [3] to reduce the ^{10}C background. However, efficiency of this technique was limited by a $(64 \pm 4)\%$. The new method allows us to improve efficiency of the ^{10}C background suppression to approximately 90-95% by optimization of the spallation cut criteria. In not so distant future, this new technique will be used to revise the $T_{1/2}^{0\nu}$ result in [2].

In order to improve the $0\nu\beta\beta$ -decay search sensitivity, we began upgrade of the KamLAND-Zen experiment by replacing the IB with a new larger and more radio-pure IB in August 2016. During the next stage of the experiment, called KamLAND-Zen 800, we will use 750kg of enriched xenon (a two-fold increase compared to the KamLAND-Zen 400) to probe effective neutrino masses as low as 40meV, making possible to start constraining the inverted hierarchy neutrino mass region under the assumption that neutrinos are Majorana particles. This experiment would become an important step towards test of the prediction made for the effective Majorana neutrino mass $\langle m_{\beta\beta} \rangle = 47 \pm 1$ meV at [4].

References

- [1] "Baryogenesis without grand unification" M. Fukugita and T. Yanagida, Phys. Lett. B 174 (1986) 45–47
- [2] "Search for Majorana Neutrinos near the Inverted Mass Hierarchy Region with KamLAND-Zen" A.Gando *et al.*, (The KamLAND-Zen collaboration) Physical Review Letters 117, 082503 (2016)
- [3] "Production of Radioactive Isotopes through Cosmic Muon Spallation in KamLAND" S. Abe *et al.*, (The KamLAND Collaboration), Physical Review C 81, 025807 (2010).
- [4] "Seesaw mechanism with Occam's razor" K. Harigaya, M. Ibe, and T. Yanagida "Seesaw mechanism with Occam's razor" PRD 86, 013002 (2012)

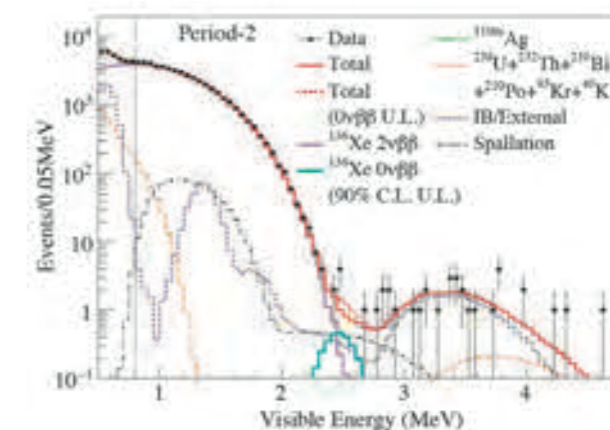


Figure 5

5.15 Recent Results from XMASS

Yoichiro Suzuki



There is so much evidence that dark matter exists through the observational facts that the matter determined dynamically always larger than the luminous matter in galaxies or clusters of galaxies. The formation of the large-scale structure of the Universe is also a convincing indication of dark matter.

XMASS is a single-phase liquid xenon detector aiming to detect interactions of dark matter on the target material by catching the scintillation light emitted. Advantage of XMASS is scalability of the detector size and high sensitivity of e/γ signals, which matches current trend of the direct dark matter searches.

For the last few years, XMASS looked for an annual modulation of the signal in the region where the DAMA/LIBRA experiment claimed evidence being persistent for more than 10 years. Other experiments did exclude a possibility by the total flux measurements that this modulation was caused by WIMPs. However, no experiments have tested their modulation directly.

We analyzed more than one years of data taken between December 2013 and March 2015. The total exposure was 0.83 ton*yr comparing to the 1.33 ton*yr for the DAMA experiment. The analysis threshold was 1 keVee that was lower than 2 keVee of DAMA and achieved superior sensitivity. It is long desired that the DAMA result need to be tested, not only for assuming WIMPs, but also for other dark matter candidates that produces e/γ as a signal.

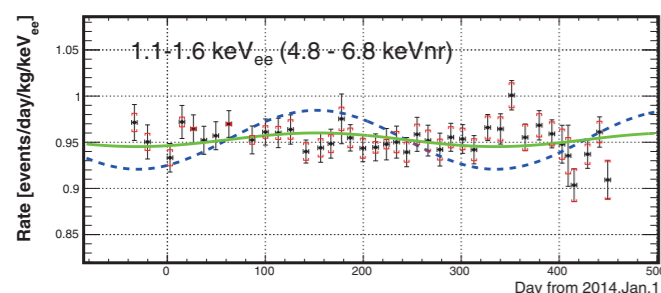


Fig. 1: The event rate as a function of time in about every 10 days. The XMASS data (data points) shows no indication of the annual modulation. The blue dashed line shows for parameters of $8 \text{ GeV}/c^2$ and $2 \times 10^{-40} \text{ cm}^2$. Green line show the parameter points just outside of the DAMA allowed region

The event rate observed in every ~10 days of XMASS data was shown in Fig. 1. The XMASS data is consistent with no significant variation within experimental errors. The blue line is an expected time variation for the WIMP mass of $m_\chi = 8 \text{ GeV}/c^2$ and $\sigma_{SI} = 2 \times 10^{-40} \text{ cm}^2$, just on the edge of the DAMA allowed region. The green line is that for $7 \text{ GeV}/c^2$ and $2 \times 10^{-40} \text{ cm}^2$, close to the edge, but outside of the region. The XMASS time variation data excluded most of the DAMA arrowed region in case of WIMP signals.

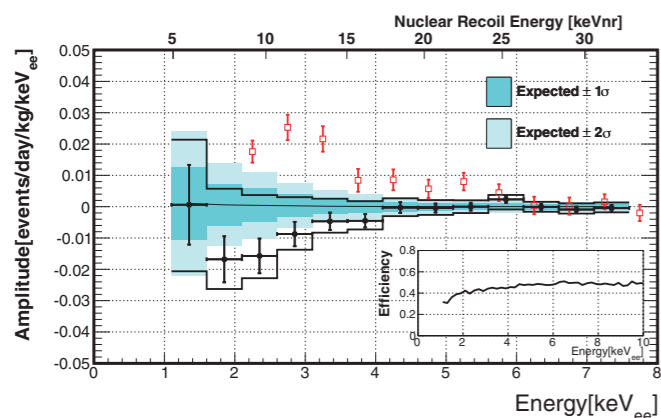


Fig. 2: Modulation amplitude obtained by a model independent analysis. We have observed a slightly negative amplitude, but statistically not significant. The red points show the amplitude of the DAMA experiment.

We have also analyzed the data without assuming WIMP dark matter. No constraint on the energy dependent amplitudes from the WIMP spectrum was applied. This method has a sensitivity for both nuclear recoils and e/γ signals. In Fig. 2, the results from this model independent analysis on the modulation amplitudes were shown. Weak negative correlation was seen in the energy region below 4 keV, but the p-value from two independent analyses were, 0.014 and 0.068, respectively and therefore not significant.

XMASS has very low background level in the tens of keV energy region, where variety of interesting physics studies can be conducted. Double electron capture (ECEC) processes although these are not dark matter related, are important processes to test Majorana nature of neutrinos. Like double beta decay, the 0ν process is much difficult to measure. $2\nu\text{ECEC}$ provides a new reference for the calculation of the nuclear matrix elements. There are only a few positive measurements of $2\nu\text{ECEC}$ so far: a geochemical measurement for ^{130}Ba ($(2.5 \pm 0.5) \times 10^{21}$ years); a direct measurement for ^{78}Kr ($(9.2^{+5.5}_{-2.6} \pm 1.3) \times 10^{21}$ years). Xenon isotopes of ^{124}Xe [0.095%] and ^{126}Xe [0.089%] are the candidates of the ECEC nuclei. A prediction for the lifetime of the ^{124}Xe $2\nu\text{ECEC}$ ranges from 10^{20} to 10^{24} years. The observed limit so far is $\tau > 2.0 \times 10^{21}$ years. The expected signature is 63.6 keV total energy deposits from the two characteristic X-rays and Auger electrons from two K-shell captures.

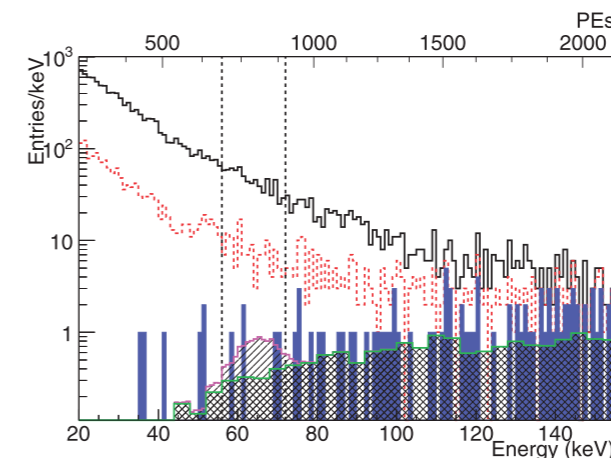
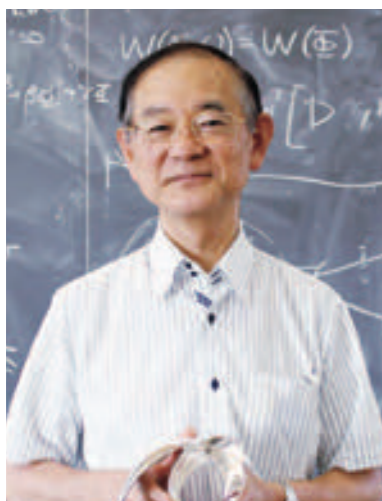


Fig. 3: Event reduction of the data analysis for 2ν double electron capture (ECEC). The final sample shown in blue histogram agree with the ^{214}Pb backgrounds in green meshed area. The 90% upper limit of the signal is also shown in a purple area.

After selecting the events with well reconstructed vertex in the fiducial volume and applying the simple timing and topological cuts, 5 events remained in the region of interest with the efficiency of 59%. The remaining events are consistent with the calculated background of ^{214}Pb . We then set an upper limit for the double electron capture of ^{124}Xe to be 4.7×10^{21} yr. By the similar analysis we have obtained the upper limit for ^{126}Xe of 4.3×10^{21} yr.

In addition to the subjects just mentioned, we have already published the results on low mass WIMPs, inelastic scattering of WIMPs, axion like particles and super-WIMPs. These results demonstrate that XMASS can search not only for WIMPs, but also for other dark matter particles, and further more XMASS can even look for neutrino processes.

6 AWARDS



Ken'ichi Nomoto

Marcel Grossmann Award

Kavli IPMU Principal Investigator Ken'ichi Nomoto's work "for heralding the role of binary systems in the evolution of massive stars" has earned him a Marcel Grossmann Award. The Awards were established in 1985 to honor the contribution mathematician Grossmann made to Einstein's construction of general relativity. Grossman had helped Einstein overcome mathematical difficulties in Riemannian geometry. The two had been classmates at the ETH Zurich and had continued their friendship. The Grossmann Awards are presented at the Marcel Grossmann Meeting on Recent Developments in Theoretical and Experimental General Relativity, Gravitation, and Relativistic Field Theory, held every three years, to recipients who are recognized for their outstanding achievements in the fields covered in this Meeting. This year's Meeting was held at University of Rome "La Sapienza" in Rome. The award ceremony was held on July 13.



Takaaki Kajita

Nobel Prize in Physics

On October 6, 2015, the Royal Swedish Academy of Sciences announced it would award the 2015 Nobel Prize in Physics to Takaaki Kajita in Japan and Arthur B. McDonald in Canada "for the discovery of neutrino oscillations, which shows that neutrinos have mass." Dr. Kajita is Director of the University of Tokyo's Institute for Cosmic Ray Research and a Kavli IPMU Principal Investigator. The Nobel Committee for Physics has recognized his work carried out on atmospheric neutrino oscillations at the Kamiokande and Super-Kamiokande detectors in Kamioka, which produced definite proof that neutrinos have mass.

Japan's Order of Culture

The University of Tokyo's Institute for Cosmic Ray Research Director and Kavli IPMU Principal Investigator Takaaki Kajita was selected as a 2015 recipient of the Order of Culture. At a ceremony at the Imperial Palace in Tokyo on November 3, Emperor Akihito awarded the medal to Kajita for his significant contribution to the development of Japan's culture.



Yoichiro Suzuki, Takaaki Kajita

2016 Breakthrough Prize in Fundamental Physics

On November 9, 2015, the Breakthrough Prize Foundation awarded this year's Breakthrough Prize in Fundamental Physics to the leading scientists and team members involved in five neutrino experiments (Japan's Super-Kamiokande, KamLAND, K2K and T2K, Canada's SNO, and China's Daya Bay). The prize is an international award recognizing scientists who have contributed to human knowledge of the mysteries of the Universe.

From the Super-Kamiokande experiment, leaders Takaaki Kajita and Yoichiro Suzuki, and all the collaboration members who are coauthors of the papers representing the Super-Kamiokande's main achievements were selected as laureates.



Yuji Tachikawa

2016 New Horizons in Physics Prize

On November 9, 2015, the Breakthrough Prize Foundation also announced Yuji Tachikawa as one of the recipients of the 2016 New Horizons in Physics Prize. Tachikawa is an Associate Professor at the University of Tokyo's School of Science, and a Scientist at the Kavli IPMU. The prize recognizes junior researchers who have made significant contributions to the field of fundamental physics.

Tachikawa was recognized for penetrating and incisive studies of supersymmetric quantum field theories. For example, his outstanding contribution to the discovery of the Alday-Gaiotto-Tachikawa correspondence led to spectacular advances in quantum field theory and string theory.

CONFERENCES

7.1 International Workshop on Condensed Matter Physics and AdS/CFT



René Meyer

Kavli IPMU Postdoctoral Fellow

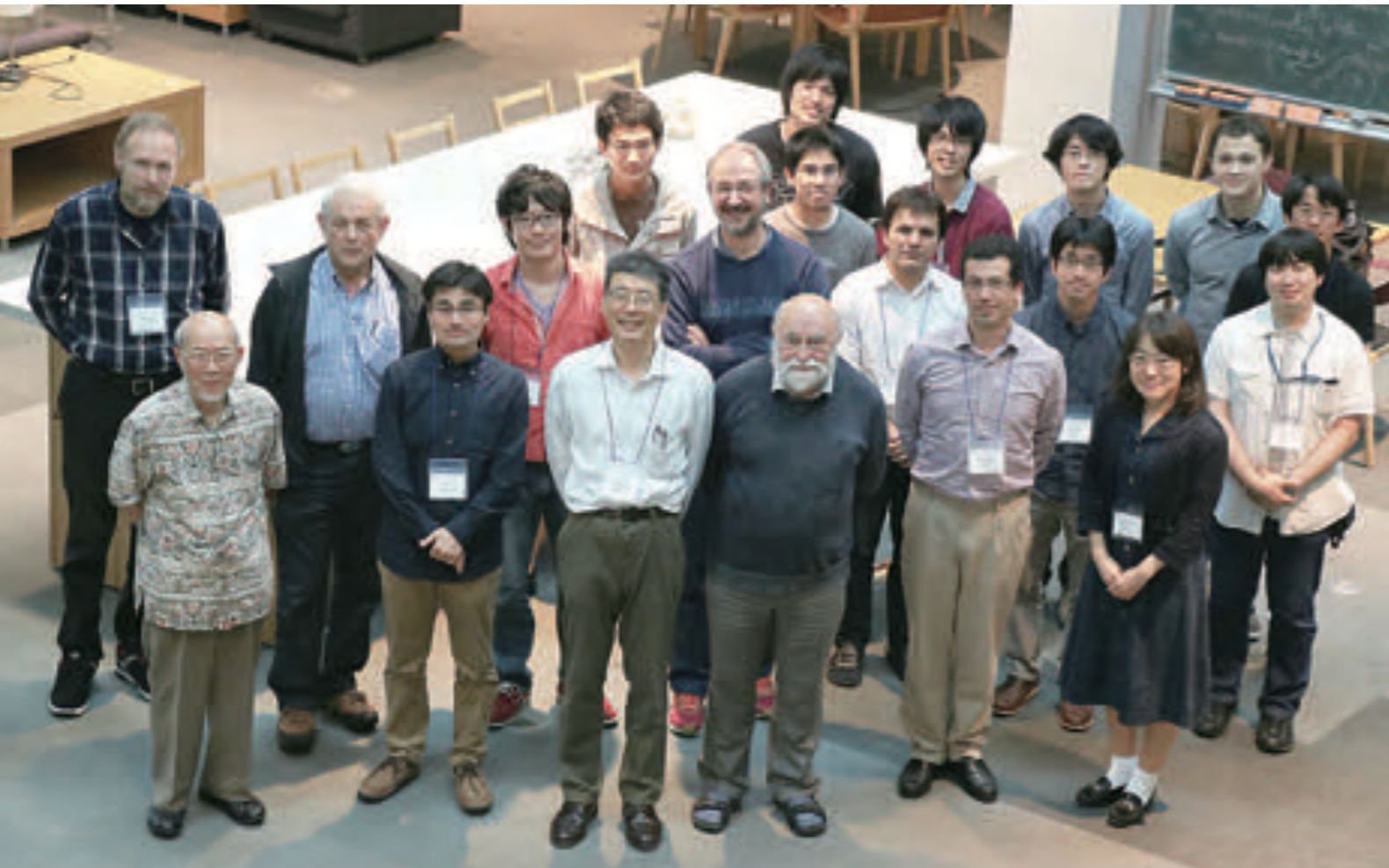
In 1997, a new duality between quantum field theories and gravity called the “gauge/string duality” (AdS/CFT correspondence) originated from string theory. It was quickly realized that this duality captures apparently universal features of certain strongly coupled systems. While first successfully applied to QCD, recent research started to apply this duality to strongly coupled and correlated states of condensed matter such as e.g. the electronic states present in high temperature superconductors. Conversely, real-world systems might be used to model gravity and in particular black holes, an approach dubbed “analogue gravity”. These results have been very promising and keep attracting the interest of string theorists, condensed matter physicists and the gravitational community. The goal of this joint workshop with the Institute for Solid State Physics (ISSP), the University of Tokyo held at the Kavli IPMU on May 25-29, 2015, organized by René Meyer (Kavli IPMU), Shin Nakamura (Chuo U./ISSP), Hiroshi Ooguri (Caltech/Kavli IPMU), Masaki Oshikawa (ISSP), Masahito Yamazaki (Kavli IPMU), and Hongbao Zhang (VUB Brussels), was to bring together key members from these three communities to foster exchange in this direction and ignite further collaboration.

The program of the workshop consisted of 20 hour-long talks by internationally recognized experts, who gave excellent overviews over their respective topics and at the same time presented cutting-edge research. In total 122 participants (80 from Japan) attended the workshop. 33 researchers from Japan and abroad used the opportunity to present their work in the gong show and poster presentation. The workshop focused on three topics: (1) AdS/CFT, non-Fermi liquid phenomenology

and high temperature superconductivity, (2) non-equilibrium physics and AdS/CFT, and (3) topological states of matter and entanglement entropy. Concerning (1), the discussion largely revolved around the question of which aspects of the physics of high temperature superconductors are relevant for AdS/CFT, and what gravity theories can describe them. A very interesting insight of (2) was that black holes in AdS/CFT share many features of non-equilibrium dynamics known from condensed matter systems. Finally, as regarding (3), entanglement entropy was discussed both as a tool to characterize topological states of matter and gauge theories, and as a way to better understand gauge/gravity duality in general.

This workshop was one of the key meetings in the field in this year. It was unique in bringing together condensed matter physicists and string theorists nearly in a half-half ratio, as well as gravitational theorists, which made it very successful. This workshop was financially supported by the Kavli IPMU, ISSP, and the EU ESF Holo-Grav network. We are grateful to the administrative staff of the Kavli IPMU and ISSP for their hard work, as well as to the volunteers from ISSP for their help.

7.2 Workshop on “Analytic Representation Theory of Lie Groups”



Yoshiki Oshima

Kavli IPMU Postdoctoral Fellow

The workshop “Analytic Representation Theory of Lie Groups” was held at the Kavli IPMU for four days from July 1, 2015 (Organizer: Professor Toshiyuki Kobayashi, PI at the Kavli IPMU). Four professors including Vershik were invited from Europe and 13 researchers gave 20 hours of talks in total. In the workshop the central subject was on the following two programs advocated by Kobayashi.

A: “Discover new phenomena in global analysis by using representation theory as a hint.”

B: “The study of branching laws of infinite-dimensional representations.”

Lie groups are a classic object that arose as continuous transformation groups and since then the theory of Lie groups has been developed, interacting with various fields in mathematics and physics. One can often find symmetries behind classical analysis such as Fourier analysis and special functions and they are described in terms of Lie groups.

Conversely, based on the extensive development of the representation theory, the programs have aroused a new trend in which studies aim to discover new phenomena in global analysis by using representation theory as a hint.

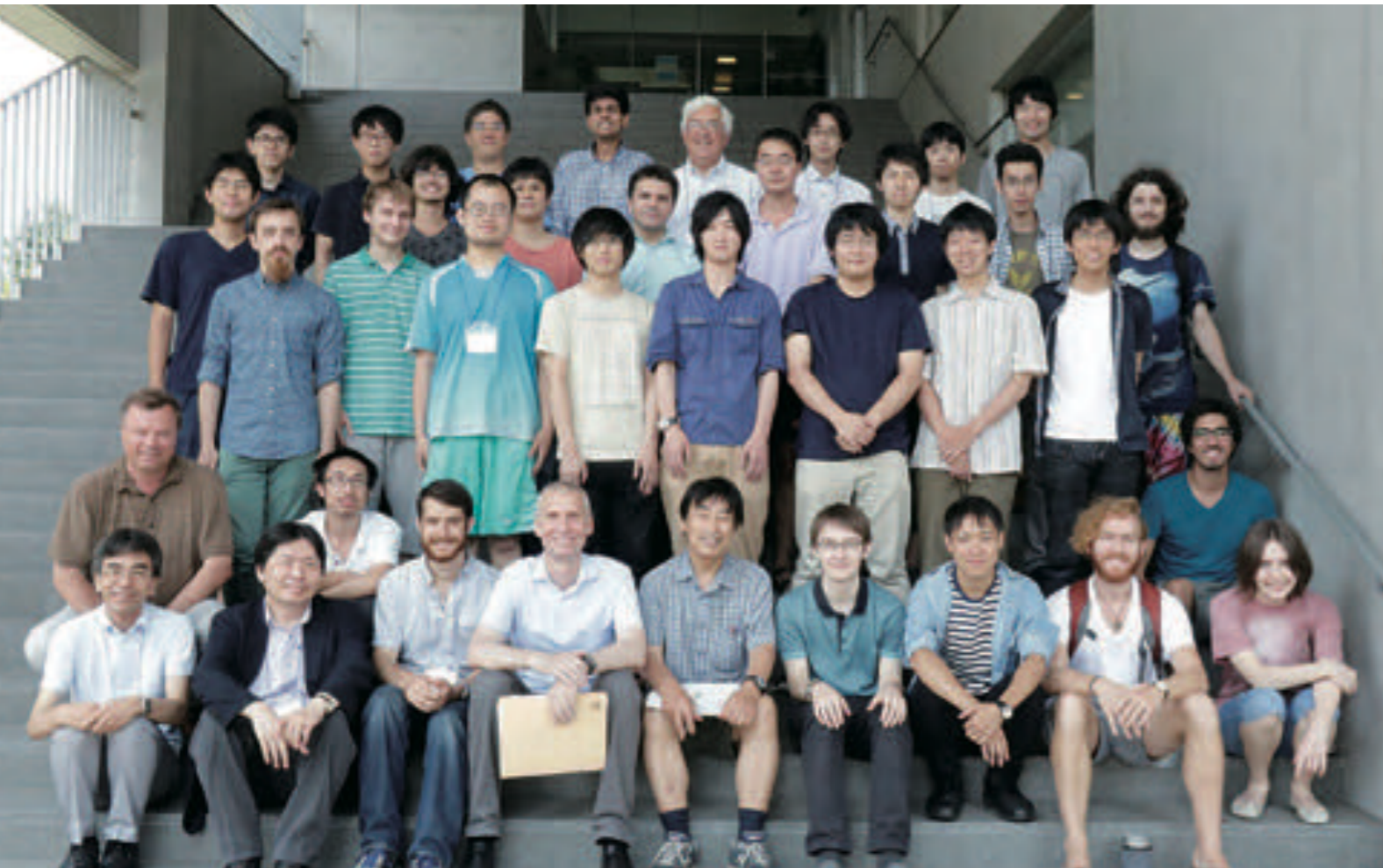
From this point of view, Orsted explained Kobayashi-Mano’s deformation theory and Ben Said-Kobayashi-Orsted’s deformation theory which includes the Fourier transform and the Dunkl transform. Kobayashi asked whether geometric quantizations and limits commute and then suggested a geometric idea for constructions of minimal representations.

Symmetry breaking operators, which control information of restrictions of representations, often came up in our discussion. This can be seen in Pevzner’s talk on the study of differential symmetry breaking operators via the F-method introduced by Kobayashi, Ochiai’s talk on an application of symmetry breaking operators to automorphic forms, and a talk by the author on branching rules of unitary representations by using symmetry breaking operators.

Vershik constructed representations of certain infinite-dimensional groups, called current groups, using complementary series representations. His talk showed the participants a new aspect of representation theory. Bianchi discussed new results on the covariogram problem which have been obtained by applying relations between geometric invariants and the asymptotic distribution of the zero set of the Fourier transform.

By focusing analytic aspects on representation theory, we found that these programs expand in many directions and the workshop was very fruitful and successful.

7.3 Tokyo-Berkeley Summer School "Geometry and Mathematical Physics"



Toshitake Kohno

Kavli IPMU Principal Investigator

This school was held in the framework of the program for Strategic Partnership between the University of Tokyo and the University of California, Berkeley. We invited five students from the University of California, Berkeley, five students from the National Research University Higher School of Economics and one student from Yau Mathematical Sciences Center, Tsinghua University. Moreover, many Japanese students from both fields of mathematics and physics attended the school and the total number of participants was about 80. To support students, we used the funding of the Leading Graduate Course for Frontiers of Mathematical Sciences and Physics (FMSP) and Japan Student Services Organization (JASSO).

The school's subjects covered various topics coming from interaction between mathematics and physics such as the theory of period integrals, Gromov-Witten invariants, mirror symmetry and Donaldson-Thomas invariants. In the first week, there were three introductory lectures. First, Kyoji Saito gave an introduction to the theory of period integrals starting from the classical theory of elliptic integrals. He explained how such classical theory leads to the construction of the flat Frobenius structure and the theory of primitive forms. Todor Milanov described a relationship between Gromov-Witten invariants and integrable systems. Then, Akishi Ikeda gave an introduction on a derived category of coherent sheaves on algebraic varieties and Bridgeland stability

conditions. On the last day of the first week there was a student session and 14 students gave presentations on their research interests. The program of the second week consisted of mini-courses and 90-minute lectures. The lecturers of the mini-courses were Mikhail Kapranov, David Morrison, Nicolai Reshetikhin and Yukinobu Toda. Mikhail Kapranov described a combinatorial approach to Fukaya categories of surfaces and the concept of Fukaya categories with coefficients. David Morrison started with the origin of mirror symmetry in string theory and discussed variations of this theme. Nicolai Reshetikhin explained a method of Batalin-Vilkovisky quantization. Yukinobu Toda talked about moduli of Bridgeland semistable objects on 3-folds and Donaldson-Thomas invariants. There were lectures by Kentaro Hori and Masahito Yamazaki. Kentaro Hori talked about the partition function on the hemisphere of two-dimensional supersymmetric sigma models and Masahito Yamazaki gave an introduction to cluster algebras and their applications.

The school was extremely lively, and there were many stimulating discussions among the participants including students. We hope to continue holding this kind of school in the future.

7.4 “Kavli IPMU-Durham-KIAS Workshop: New Particle Searches Confronting the First LHC Run-2 Data”



Michihisa Takeuchi
Kavli IPMU Postdoctoral Fellow

The international workshop was held at the Kavli IPMU on September 7 – 11, 2015. This workshop was co-organized by the Kavli-IPMU, Durham University, and KIAS. The organizing committee consists of Michihisa Takeuchi, Shigeki Matsumoto, Mihoko Nojiri, Kai Schmits, Pyungwon Ko, and Michael Spannowsky.

The aim of the workshop was to discuss new physics discoveries at the LHC just after the first LHC Run 2 results became public at the end of August (where the collision energy had been upgraded from 8 TeV to 13 TeV). There were several anomalies and divergences from the Standard Model predictions reported during Run 1; they are to be re-examined during Run 2. It was very timely to hold this workshop at this moment.

The workshop mainly consisted of 2 invited talk sessions in the morning and an invited talk and short talk sessions in the afternoon. In total, we had 10 speakers invited from abroad, 2 speakers invited from the Kavli IPMU, and 26 short talks. There were 67 participants from 11 countries (33 of the participants were from Japan).

Mihoko Nojiri launched the workshop with an overview for Run 2 and Bryan Webber gave two talks on event generations and jet substructures. In the afternoon, Yang Bai talked about non-relativistic particle production at the LHC. On the second day, 8 TeV results and 13 TeV perspectives at ATLAS and CMS were presented by Paul de Jong and Teruki Kamon, respectively, and Valentin V. Khoze talked about the Higgs Portal. On the third

day, Tsutomu Yanagida gave a talk on Quarks and Leptons as Quasi-Nambu-Goldstone Fermions. On the fourth day, Seung Joon Lee talked about spin 1/2 composite particles, James B. Dent talked about the general framework of the effective field theory regarding dark matter at the LHC, and Graham Kribs talked about stealth dark matter. On the final day, Matthew McCullough talked about the Relaxion and Lian-Tao Wang closed the workshop with a talk on spin 1 composite particles.

There were also short talks on new discovery strategies, kinematical variables at the LHC, a model to explain the diboson anomaly, lepton flavor violation, two-Higgs-doublet models, and dark matter searches at the LHC.

The workshop successfully closed with an announcement by Michael Spannowsky regarding a plan to have the next workshop at Durham University next year. It was a very good opportunity for lots of discussions with broad range of topics.

7.5 MEXT Scientific Research on Innovative Area Inauguration Symposium “Why Does the Universe Accelerate? – Exhaustive Study and Challenges for the Future –”



Masahiro Takada
Kavli IPMU Professor

The MEXT Scientific Research on Innovative Area “Why does the Universe accelerate? – Exhaustive study and challenges for the future –” (PI: Hitoshi Murayama) is newly launched in FY2015. During Sep 20 – 21, we had the inauguration symposium at Lecture Hall of the Kavli IPMU. We had over 100 participants even in the middle of Silver Week holidays.

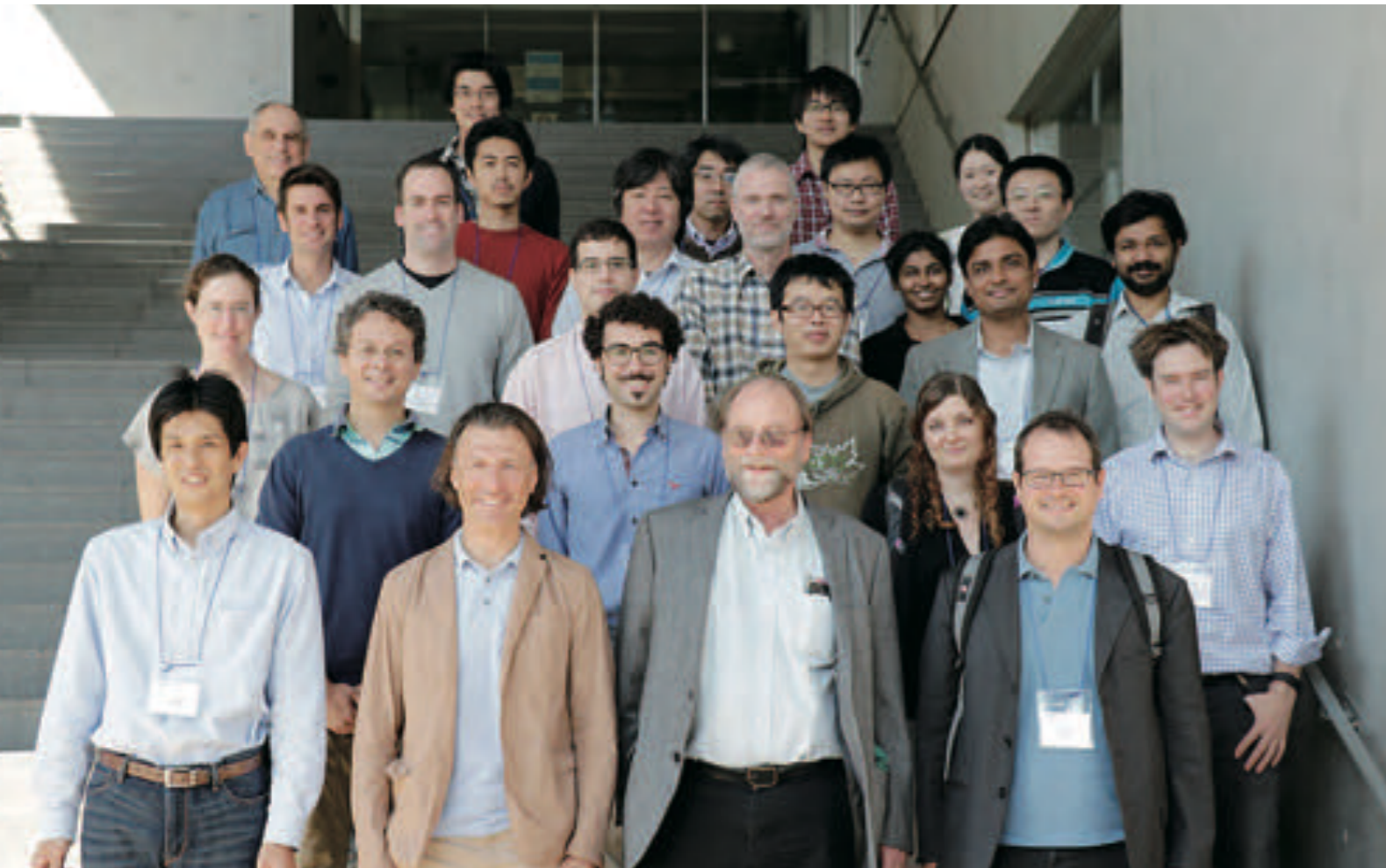
There is observational evidence for two periods of accelerated cosmic expansion: at the very beginning, known as inflation; and the present. Since Newton’s and Einstein’s gravity is known as an attractive force, gravity can only “pull” the expansion to slow it down. Hence cosmic acceleration is the biggest mystery in cosmology. What is “pushing” the Universe to speed it up? We often invoke “inflation” and “Einstein’s cosmological constant” as theories, but they have many unnatural features and are far from being satisfying explanations. The purpose of this research area is to understand the origin of the accelerated cosmic expansion, as well as its interplay with dark matter that competes with the acceleration to build galaxies and clusters of galaxies. To address this problem never encountered before, we propose to conduct research based on a comprehensive approach: theory units ranging from cosmic acceleration due to inflation (A01: Misao Sasaki, Kyoto U.), decelerated expansion phase due to dark matter (A02: Fuminobu Takahashi, Tohoku U.), and the late-time cosmic acceleration due to dark energy (A03: Naoshi Sugiyama, Nagoya U.); observational units based on CMB experiments (B01: Masashi Hazumi, KEK), galaxy imaging surveys (B02: Satoshi Miyazaki, NAOJ), galaxy redshift surveys (B03: Masahiro

Takada, IPMU), and the Thirty-Meter Telescope (B04: Tomonori Usuda, NAOJ); then ultimate units developing tools of combining different cosmological datasets to extract cosmological information (D01: Eiichiro Komatsu, MPA/IPMU) and seeking an ultimate theory of cosmic acceleration from super-string theory with a top-down perspective (C01: Hiroshi Ooguri, Caltech/IPMU). This research program will be carried out over five-year duration (FY2015 - FY2019).

Representatives from each research group gave talks at the meeting introducing the background, scientific objectives, and planned research programs during the period. We also had contributed talks mainly by young researchers, stimulating various discussions. At the launch of this research program, there were many expectations and a lot of enthusiasm and excitement, and the research teams were able to re-realize responsibility for ensuring the success of the proposed research. The symposium was highly successful and moved the momentum forward.

The symposium was successfully run by other local organizers: Tepei Okumura, Kiyoto Yabe, Yuki Moritani, Hiroko Niikura, Ryoma Murata and Kazuyuki Akitsu. We also thank the Kavli IPMU administrative office members, especially Shoko Ichikawa for their dedicated support.

7.6 Workshop on Astrophysics of Dark Matter



Alexander Kusenko

Professor of Physics and Astronomy at UCLA
and Kavli IPMU Visiting Senior Scientist

The *Astrophysics of Dark Matter* focus week, held at the Kavli IPMU on October 13 – 16, 2015 brought together particle physicists and astrophysicists to discuss one of the most intriguing mysteries in the universe, the mystery of dark matter.

Most of the matter in the universe is dark matter; it is not composed of ordinary atoms, but, rather, of new, yet undiscovered particles. The presence of dark matter is seen by its gravity. Dark matter mass can be measured in several ways. First, gravitational lensing observations, using the bending of light by massive objects, can determine the masses of the “lenses” composed of dark matter. Second, the temperature of gas in clusters of galaxies, inferred from x-ray observations, can be used to determine the depth of the potential well containing this gas. Third, the spectrum of temperature fluctuations in the cosmic microwave background radiation left from Big Bang can be used to measure the ratio of all gravitating matter to ordinary matter, which, unlike dark matter, feels the pressure of photons. Finally, the measured speeds of galaxies in clusters and of stars in galaxies tell us about the gravitational pull of the mass in those objects. All of these independent measurements converge on the same number: dark matter outweighs ordinary matter by more than a factor five.

However, the composition of dark matter remains a mystery. One can show that none of the particles discovered so far can make up dark matter, and, therefore, identification of dark matter will be a discovery of at least one new particle, taking science in a new direction beyond the standard model of particles and interactions.

To solve the mystery of dark matter, one must understand any non-gravitational interactions it might have because these interactions may allow us identify the

dark matter particles. Astrophysics can probe the nature of dark matter in several ways.

Dark matter has played a leading role in forming structures we see in the universe today, such as galaxies, clusters of galaxies, etc. The smallest possible structures in the universe depend on whether dark matter is cold or warm, that is, how fast the dark matter particles were moving at the dawn of structure formation. The density profiles of dark matter halos can also be affected by self-interactions of dark matter particles with each other. Observations of dwarf spheroidal galaxies, and the determinations of the dark matter profiles of galaxies and clusters can shed light on the properties of dark matter particles.

Several recent developments made the workshop timely and exciting. The possibility that a reported 3.5 keV X-ray line originates from decay of dark matter, coupled with some anomalies of structure formation on sub galactic scales were at the focus of discussion. Recent breakthroughs in N-body simulations of dark matter, which allow a better description of dark matter (cold and warm), as well as baryons, promise to provide better tools for relating small-scale structure to the properties of dark matter. The proliferation of particle physics models with self-interacting dark matter raises new questions in connection with astrophysical manifestations of microscopic properties of dark matter particles, from halo shapes and triaxiality, to density profiles, to cluster collisions, to supermassive black hole formation. N-body simulations are reaching new levels of understanding of dark matter and baryonic matter; observational techniques using gravitational lensing are maturing. All of these developments made it timely to bring together astrophysicists and particle physicists for a productive discussion.

7.7 TeV Particle Astrophysics (TeVPA) 2015



Masahiro Kawasaki

Kavli IPMU Principal Investigator

Shigeki Matsumoto

Kavli IPMU Associate Professor

The conference "TeV Particle Astrophysics (TeVPA) 2015" was successfully conducted at the Kashiwa-no-ha Conference Center October 26 – 30, 2015. It was organized by the Kavli IPMU and the Institute for Cosmic Ray Research of the University of Tokyo. Having a conference dedicated to the current situation and future prospects of TeV particle astrophysics was an important and timely idea for the following reasons. First, the origin of cosmic rays is now being resolved thanks to great strides in the development of particle astrophysics. These include the observations of gamma rays (at HESS, etc.), high energy neutrinos from outside the earth's atmosphere (at Ice-Cube, etc.), and various cosmic-ray species with unprecedented accuracy (at AMS-02, etc.). Second, TeV particle astrophysics provides us with precious data to search for dark matter, in particular, when its mass is of the order of TeV rather than the electroweak scale, for such heavy dark matter is difficult to detect in collider experiments in the near future.

All of these topics were covered in great depth at the conference, which included fifteen plenary talks and four parallel sessions (dark matter, neutrino, cosmic-ray, and gamma-ray sessions). Concerning neutrino physics, data on high energy neutrinos were accumulated and their origin was discussed in plenary and contributed talks. The future prospects of neutrino observations were also discussed. Another important subject in the conference was ultra-high energy cosmic rays whose spectrum, compositions, and anisotropy were attracting great interest from participants. Gamma-ray astronomy has been developing with large Cherenkov detectors and is expected to reveal the acceleration mechanism of

cosmic rays and properties of source objects. Thus, many aspects of gamma-ray astronomy were covered and intensively discussed in the conference.

On the other hand, concerning dark matter studies, most of the plenary and contributed talks were devoted to indirect searches for dark matter. Since particle astrophysics and astronomical observations are steadily being developed and as a result we will obtain in the near future very precise data of dark matter such as distributions in our galaxy and satellite galaxies, all participants were interested in the impact of the observations on indirect dark matter searches. These aspects were thoroughly covered and discussed in the talks, and participants could clearly understand the current situation and future prospects of the searches, and got a glimpse of promising future directions on this subject.

This conference was originally not planned to be a large one, but the number of participants was much more than expected. We had almost 200 participants in total! This means that the topic of the conference is now regarded as the most important one by almost all researchers in particle physics, cosmology, and astronomy. Having a similar workshop again at the Kavli IPMU in near future would be important.

7.8 PFS-SSP Galaxy Survey Workshop 2015



Kiyoto Yabe

Kavli IPMU Postdoctoral Fellow

There is a wide variety of galaxies in the Universe. How did they form? One way to explore this astronomical question is to reveal the past appearance of distant galaxies. Spectroscopic observations are a common way to determine the nature of the galaxy in detail. Distant galaxies, however, tend to be generally faint, and spectroscopic observation becomes difficult compared to nearby galaxies. Therefore, spectroscopic observation with larger telescopes is indispensable. Furthermore, multi-object spectroscopy to observe as many galaxies as possible is important for an efficient survey of faint galaxies.

Prime Focus Spectrograph (PFS) on the Subaru Telescope, which is now being promoted by the Kavli IPMU, is a fiber type spectrograph that can simultaneously obtain spectra of up to 2400 objects in a field of view of 1.3 degrees, covering a wide wavelength range from visible to near-infrared. Using this powerful instrument, we are now preparing for a large galaxy spectroscopic survey. Since PFS is an international collaboration, the survey plan is being discussed by researchers all around the world. On November 13, 2015, about 40 Japanese researchers who are interested in the galaxy formation and evolution gathered at the Kavli IPMU and discussed specific scientific cases using PFS.

The PFS galaxy survey targets galaxies at redshift of around 2 (age of the Universe of about 30 billion years), when the galaxies are in the most active phase, to make statistical studies of the nature of galaxies. However, since the observable wavelength of PFS is wide, it is possible to observe objects such as galaxies and active galactic nuclei (AGN) at various redshifts from ~ 1 (age of the Universe of 60 billion years) to ~ 7 (age of the Uni-

verse of 800 million years). In this workshop, we discussed what kind of scientific cases will become clear by using PFS and how to arrange the survey strategy. In addition, the importance of the role of PFS in this field was also discussed from the theoretical point of view.

At this time, the expectations for PFS of galaxy formation and evolution researchers in Japan are becoming clearer. Although PFS is a project based on international collaboration, the Japanese community is expected to take leadership on the survey. In addition to the discussion on specific scientific themes, some researchers who will lead the individual topics were determined.

In the future, researchers in the PFS collaboration will gather and discuss various topics related to the project. The results of the discussions in this workshop will be reported in the collaboration meeting, and consistency with the other surveys will be discussed. We expect to start the actual observations from the second half of 2019. We will continue to hold similar scientific workshops on a regular basis, and the discussion will be input into the survey plan in order to successfully achieve the goals related to galaxy formation and evolution with unprecedented results.

We are grateful to the staff of the Kavli IPMU for their hard work, as well as to the graduate students of the University of Tokyo for their help.

7.9 Categorical and Analytic Invariants in Algebraic Geometry 1 & 2



Alexey Bondal

Kavli IPMU Principal Investigator

The year 2015 saw the start of the Japanese-Russian bilateral project on Categorical and Analytic Invariants in Algebraic Geometry. It was jointly financed by JSPS and the Russian Foundation for Basic Research (RFBR). The project is governed by Kyoji Saito and Alexey Bondal.

The aim of the project is to bring together the best Japanese and Russian experts actively working in the area of algebraic and analytic geometry, homological algebra and string theory, in order to get an insight on the structure of complex varieties and certain interrelated invariants thereof, such as derived categories, semi-infinite Hodge structures, topological correlators and quantum motives, which reflect the properties of these varieties relevant to mirror symmetry.

The first conference, “Categorical and Analytic Invariants in Algebraic Geometry 1,” under the auspices of this project, took place at the Steklov Institute in Moscow on September 14 – 18. Several members of the Kavli IPMU participated, as well as mathematicians from the Graduate School of Mathematical Sciences, The University of Tokyo, from Kyoto University, Osaka University, Tokyo Metropolitan University, the Steklov Institute in Moscow, the Higher School of Economics in Moscow.

The new workshop, “Categorical and Analytic Invariants in Algebraic Geometry 2,” took place at the Kavli IPMU during the week of 16 – 20 November, 2015. More experts on the subject of the project from both Russia and Japan as well as from several other countries attended.

From the mathematical perspective, mirror symmetry is understood as a mysterious duality between the complex and symplectic worlds, where branes, the boundary conditions for strings, are interpreted in a non-mixed way either as complexes of coherent sheaves or as Lagrangian submanifolds. For that reason, the project has two sides, symplectic and complex, and many talks of the workshop were devoted to study of one of the sides of the mirror or to comparison of the two.

Since the subject of the study of the project is inspired by mirror symmetry, which was a discovery of physics, it was crucial to give the microphone to physicists. The first speaker of the workshop was Kentaro Hori, a string physicist at the Kavli IPMU, who outlined an approach from the perspective of Gauged Linear Sigma Models.

An interpretation of the Fukaya categories of Lagrangian cycles in terms of the categorification of special topological constructible complexes of sheaves, called perverse sheaves, was presented by Mikhail Kapranov. He described a vast categorical and topological landscape of this new theory and gave an explicit description for the case of punctured Riemann surfaces by means of the Waldhausen construction.

An application of K. Saito’s Frobenius structures related to singularities of functions to the physical problem of the computation of the correlation numbers in the theory of 2-dimensional Minimal Liouville gravity was reported by the famous Russian physicist Alexander Belavin. In a conjectural picture proposed by the speaker, the choice of primitive form was of crucial importance.

Another attempt to have a look behind the both sides of the mirror was the talk given by Hiroshi Iritani on mirror symmetry of toric stacks. The consistency of behavior of analytic and categorical invariants of toric stacks under mirror symmetry transformation was scrutinized with delicacy.

All the other talks at the workshop were devoted to the most modern and advanced study of either categorical or analytic invariants on one of the side of the mirror, i.e. in complex and algebraic geometry or in symplectic geometry. The excellent expertise of the participants has guaranteed that the level of the reported research was far beyond what one might expect in the boundaries of two countries; it was truly world class. That is why the workshop attracted the attention of some prominent foreign researchers.

7.10 B Mode from Space



Hajime Sugai

Kavli IPMU Associate Professor

The workshop “B Mode from Space” was held at the Kavli IPMU Lecture Hall from Thursday, December 10 to Wednesday, December 16, 2015, with 130 participants (<http://indico.ipmu.jp/indico/conferenceDisplay.py?confId=72>). The research goal of the participants is to reveal the inflation era before the Big Bang. In the period immediately after the beginning of the universe, the universe is believed to have expanded exponentially and to have produced the primordial gravitational wave. We aim to detect the footprint of this wave on the Cosmic Microwave Background (CMB) in a form of polarization pattern called B mode. The CMB has its emission peak at millimeter wavelengths. It is essential to separate it from the foreground galactic emission including the synchrotron and the dust emission.

In this workshop, we intensively discussed the developments of foreground removal methods over the course of a whole day, including talks on the dust emission mechanism itself. We have also discussed other scientific motivations of CMB polarization experiments, e.g., the understanding of the reionization era of the universe and the narrowing down of the neutrino mass limit.

Based on the direct involvement of participants in past, present and future CMB polarization projects, various kinds of approaches have been reported. These include ground-based experiments such as SPT, ACT, POLARBEAR/Simons Array, ABS, QUIJOTE, and CMB-S4; balloon experiments such as EBEX and PIPER, which are shorter-time scale experiments but are relatively free from atmospheric absorption / radiation; and satellite experiments such as Planck, LiteBIRD, and PIXIE, which carry

out long-term measurements without suffering from the atmosphere. Through this workshop, a major movement towards next-generation CMB polarization experiments has emerged, as mentioned in the conference banquet by Jan Tauber, who was responsible for the Planck satellite (which followed COBE/WMAP CMB satellites).

In the second half of the workshop, technical aspects of CMB experiments were reported and discussed, including compact optics for satellites, polarization modulators with a half wave plate, cooling systems including adiabatic demagnetization refrigerators which go down to 100mK, and TES/MKID superconductor detectors and their readout systems. The Kavli IPMU is one of the core institutions of LiteBIRD (Light satellite for the studies of B-mode polarization and Inflation from cosmic background Radiation Detection), and I presented on its optics designing. The LiteBIRD will carry out three-year measurements of linear polarization of the CMB in the whole sky, covering the wide frequency range of 35GHz to 450GHz.

About 40%, 30%, and 30% of the participants, were respectively from Japan, the USA, and Europe; these regions are leading this research field of CMB experiments. The local organizing committee, led by Nobu Katayama, consisted of Masaya Hasegawa, Masashi Hazumi, Hirokazu Ishino, Tomotake Matsumura, Yutaro Sekimoto, and Sugai. We thank the Kavli IPMU office, particularly Ms. Kohama, for their management support, as well as students from Japanese universities.

7.11 10th Asian Winter School on Superstring Theory



Hiroshi Ooguri

Kavli IPMU Principal Investigator

Since 2007, the Asian Winter School on Superstring Theory has been hosted in turn by Japan, China, India, and Korea. It was initiated by researchers of the four countries during the Strings 2003 conference in Kyoto, to offer opportunities of professional growth for young researchers in the Asia region and to enhance their interactions and collaborations within the region. As the result, the 1st Winter School was held in Korea in 2006. This year, the 10th School was co-hosted by the Kavli IPMU and the Okinawa Institute of Science and Technology Graduate University (OIST) and held at OIST from January 6 to 16.

There were nine courses of lectures on subjects ranging from fundamental issues in superstring theory and quantum field theory to applications of superstring theory to cosmology, particle physics model building and phenomenology. Each lecturer representing a forefront of each area gave four x 75 minute lectures. At the end of each day, we had a discussion session for students to ask questions to lecturers and for the lecturers to expand on topics discussed in their lectures. The lecturers and their titles of their courses are:

Miranda Cheng (University of Amsterdam) "Mock Modular Forms in String Theory and Moonshine"; Ron Donagi (University of Pennsylvania) "Super Riemann Surfaces and Supermoduli Spaces"; Rajesh Gopakumar (International Center for Theoretical Sciences, India) "Higher Spins and Strings"; Daniel Harlow (Harvard University) "The Emergence of Bulk Physics in AdS/CFT"; Seok Kim (Seoul National University) "5d and 6d SCFTs"; Slava Rychkov (CERN and University of Paris VI) "Conformal Bootstrap"; Gary Shiu (University of Wisconsin and Hong Kong University of Science and Technology) "Inflation in String Theory"; Jaroslav Trnka (California Institute of Technology) "Scattering Amplitudes"; Angel Uranga (Instituto de Física Teórica UAM-CSIC) "String Phenomenology."

Lecture notes and reading materials have been posted on the School website to help students learn more on these subjects (<https://groups.oist.jp/ja/aws/lecturers>).

Initially, we were planning to accept 80 graduate students and postdoctoral fellows. It turned out we received more than 200 applicants, and we expanded the size of the School. In the end, 91 students attended the School. They were 41 from Japan, 21 from Korea, 14 from China (including Taiwan), 9 from India, and 6 from US and Europe. To give opportunities for students to present their research results, we had two "Gong Shows," with 5 minute oral presentations. 31 students made Gong Show presentations (<https://groups.oist.jp/ja/aws/gong-show>). In addition, we set up poster boards outside of the Auditorium for students to make poster presentations during coffee breaks.

Over the past 10 years, the Asian Winter School has contributed significantly in education, exchanges, and collaborations of young researchers in the Asia region. We thank the Kavli IPMU and OIST for administrative and financial supports and OIST for use of its facility for this 10th School. We also acknowledge financial supports from Sokendai and APCTP in Korea. Student volunteers from Osaka University and KEK also helped us run the School smoothly.

In recognition of the success of the Asian Winter School over the past 10 years, the Kavli Foundation has decided to support the School by providing an annual fund to cover a majority of the cost of the School, ensuring its stable future. We are grateful to the Foundation for its support to our effort to educate and mentor future generations of theorists in Asia.

7.12 Berkeley Week @ IPMU



Yasunori Nomura

Professor, Department of Physics, University of California, Berkeley
and Kavli IPMU Visiting Senior Scientist

This workshop was held in the framework of the program for Strategic Partnership between the University of Tokyo and the University of California, Berkeley. We invited 4 postdoc researchers from Berkeley to enhance interactions between researchers in the two institutions and 3 students to help organizing the workshop. The workshop consisted of 3 days of talks, on 3/22 (Tue), 24 (Thu), and 25 (Fri), and a reception in the evening of 22 Tuesday. The subject of the workshop was about future of particle physics. Young researchers presented what they consider most interesting. Audience included students at the University of Tokyo, senior faculty members at the Kavli IPMU, Hongo campus, ICRR, KEK, and University of California, Berkeley.

From the Kavli IPMU side, Masaki Yamada, Kazuya Yonekura, Koji Ichikawa, Michihisa Takeuchi, Hajime Fukuda, and Kyohei Mukaida presented talks. Yamada discussed the possibility of building cosmologically safe QCD axion models using monopole condensation. Yonekura presented strongly coupled field theories which may be interpreted as U(1) gauge theories with massless magnetic monopoles and electrons. Ichikawa discussed the future dark matter halo survey of the dwarf spheroidal galaxies and effect of the foreground stars. Takeuchi talked about probing new physics in the top Yukawa sector. Fukuda presented a model which realizes a heavy visible axion, instead of usual light invisible axions. Mukaida discussed the fate of our electroweak vacuum during the preheating era after inflation.

From the Berkeley side, Daniele Bertolini, Yonit Hochberg, Thomas Melia, and Keisuke Harigaya gave talks. In addition, Eric Kuflik from Cornell presented his work. Bertolini discussed a method of doing precision cosmology using effective field theory of large scale structures. Hochberg presented the idea of detecting light dark matter using superconducting detectors. Melia described a method of figuring out operator basis in effective field theories using conformal algebra. Harigaya presented a model in which dark matter of mass of order 10 MeV - 1 GeV is obtained from a light chiral sector. Kuflik discussed displaced vertices at the LHC, especially in the context of R-parity violated supersymmetry and neutral naturalness.

The topics covered by the workshop spanned a wide range of particle physics and cosmology. There were lots of interesting and lively discussions, helping attendees to have new visions on various problems. The workshop was highly successful, and we hope to have similar programs in the future.

8 SEMINARS

FY2015

Cheng-wei Chiang (NCU)

Exploring the Higgs sector of Georgi-Machacek model at colliders
Apr 01, 2015

Yasunori Nomura (UC Berkeley / Kavli IPMU)

The Multiverse —Emerging New View of Fundamental Physics
Apr 01, 2015

Peter Capak (Caltech)

Oceans Of Data And Rosetta Stones: Understanding How The First Galaxies Formed
Apr 02, 2015

Federico Sanchez (IFAE Barcelona)

Next obstacles in precision neutrino oscillations: neutrino-nucleus cross-sections
Apr 03, 2015

Chandrachur Chakraborty (Saha Inst. of Nucl. Phys.)

Lense-Thirring precession in strong gravitational fields
Apr 03, 2015

Stephen Baiele (LBNL)

The Dark Energy Spectroscopic Instrument (DESI) Survey
Apr 07, 2015

Francisco-Shu Kitaura (AIP)

Modelling and reconstruction of the cosmological large-scale structure from galaxy redshift surveys
Apr 07, 2015

Surjeet Rajendran (UC Berkeley)

Detecting Ultra-light Dark Matter with Precision Metrology
Apr 08, 2015

Arpan Bhattacharya (IIS, Bangalore)

Lessons for Gravity from Entanglement
Apr 09, 2015

Banerjee Shankha (Harish-Chandra Research Inst)

A Higgs or the Higgs? A Detailed look at the Anomalous Higgs Couplings
Apr 15, 2015

Konrad Kuijken (Leiden U)

Gravitational Lensing with KiDS
Apr 16, 2015

Gerard 't Hooft (U Utrecht)

The Large Hadron Collider and New Avenues in Elementary Particle Physics
Apr 16, 2015

Kaladi Babu (Oklahoma State U)

Probing Physics behind Neutrino Masses
Apr 17, 2015

Hayato Chiba (Kyushu U)

Painleve equations and weight system
Apr 20, 2015

Daniel Kunth (IAP)

Local Lyman alpha emitters: last results from the LARS project
Apr 20, 2015

Jean Coupon (U Geneva)

Probing the relationship between Galaxies and Dark Matter with Lensing and Clustering in CFHTLenS/VIPERS
Apr 21, 2015

Kalol Sen (IIS Bangalore)

Analytic Bootstrap: Universality at large spin and large twist
Apr 21, 2015

Hanindyo Kuncarayakti (U Chile)

The progenitors and environments of hydrogen-poor core-collapse supernovae
Apr 22, 2015

Matthew Becker (Stanford/KIPAC)

Measuring Cosmic Shear with the Dark Energy Survey
Apr 23, 2015

Tomoyuki Mano (Ryuukyuu U)

Flat structure on isomonodromic deformations
Apr 24, 2015

Biswarup Mukhopadhyaya (Harish-Chandra Research Inst)

The credibility of SUSY phenomenology: some silver linings
Apr 24, 2015

Alessandro Manzotti (U Chicago)

The NeverEnding story of Cosmic Microwave Background and Large Scale Structure correlations
Apr 24, 2015

Wanshun Wong (U Ottawa)

Torsion in the codimension-two Chow group of some toric varieties
Apr 28, 2015

Daisy Mak (KICC)

Latest results from the Planck satellite and implications for star formation properties
Apr 30, 2015

Sadakazu Haino (Academia Sinica)

The new results from Alpha Magnetic Spectrometer (AMS)
May 07, 2015

David McGady (Kavli IPMU)

Surprises in gauge theories: temperature-reflection symmetry, hidden
May 12, 2015

Piet Hut (IAS/ELSI)

Beyond Thermodynamics: the Physics of Matter, Life, and Intelligence
May 12, 2015

Gautam Bhattacharyya (Saha Inst. of Nucl. Phys., Kolkata)

2HDM scalar potential and the role of symmetries
May 13, 2015

Gerhard Hensler (U Vienna/ NAOJ)

The early evolution of the Milky Way's satellite system in CDM cosmology
May 14, 2015

Dulip Piyaratne (Kavli IPMU)

Cohomological Fourier-Mukai transforms of abelian varieties
May 14, 2015

Jeffrey Newman (U Pittsburgh)

Combining imaging and spectroscopy to reveal the hidden universe
May 19, 2015

Keiichi Ito (Rikkyo U)

Recent topics in rigorous proof of quark confinement
May 20, 2015

Anupam Mazumdar (Lancaster U)

Towards understanding UV aspects of gravity
May 20, 2015

Jackson Wu (NCTS Hsinchu)

Some explorations of a holographic Kondo model: quantum quench and entanglement entropy
May 21, 2015

Tetsu Kitayama (Toho U)

Prospects of galaxy cluster studies with ASTRO-H
May 21, 2015

Ed Turner (Princeton U)

How Bayesian Statistics Are Different And Better
May 26, 2015

Jose Sanchez-Gallego (U Kentucky)

MaNGA: how to run a successful survey (and not die trying)
May 26, 2015

Eibun Senaha (NCU)

Higgs physics as a probe of electroweak baryogenesis
May 27, 2015

Roger Wendell (ICRR)

Antineutrino Results from T2K
May 27, 2015

John Silverman (Kavli IPMU)

Star formation, gas and the ISM of high-z starburst galaxies
May 28, 2015

A. Emir Gumrukcuoglu (U Nottingham)

Horava gravity: Suppressing the Lorentz violations in the matter sector
May 29, 2015

Matteo Fasiello (Stanford U)

From Massive Gravity to Bigravity and back
Jun 01, 2015

Ed Turner (Princeton U)

A Zoo of Bayesian Priors
Jun 02, 2015

Hongbao Zhang (VUB Brussels)

Holographic vortex pair annihilation in superfluid turbulence
Jun 02, 2015

Emanuela Dimastrogiovanni (Arizona State U)

Inflationary Tensor Fossils in CMB and LSS
Jun 03, 2015

Tom Abel (Stanford U)

Dark Matter Dynamics
Jun 03, 2015

Ed Turner (Princeton U)

Obtaining and Understanding Bayesian Posteriors
Jun 04, 2015

Ranieri Baldi (Technion in Israel)

Nuclear and host properties of local and distant radio galaxies (FRO-FRI-FRII): similarities and differences
Jun 08, 2015

Ed Turner (Princeton U)

Practical and Philosophical Problems with Bayesian Statistics
Jun 09, 2015

Michele del Zotto (Harvard U)

4D $N=2$ Galois symmetries
Jun 11, 2015

Hsi-An Pan & Alex Pettit (Hokkaido U)

(Hsi-An Pan) What is a Giant Molecular Cloud? Are Observers and Simulators Discussing the Same Star-forming Clouds? (Alex Pettit) Armed and/or dangerous: the sensitivity of galactic spiral generation in tidal encounters
Jun 11, 2015

Oliver Hahn (Université de Nice)

A new approach to simulation of collisionless fluids (dark matter)
Jun 12, 2015

Marti Lahoz (Universite Paris)

ACM bundles and derived categories of cubic hypersurfaces.
Jun 15, 2015

John F. Duncan (Case Western U)

Moonshine and Sigma Models
Jun 16, 2015

Kyohei Mukaida (Kavli IPMU)

Thermalization after Inflation
Jun 17, 2015

Vincent Vennin (Portsmouth U)

Correlation Functions in Stochastic Inflation
Jun 23, 2015

Shude Mao (Tshingua U / NAO Chinese Academy of Sciences)

Modelling the Milky Way Bar
Jun 25, 2015

Andreas Karch (U Washington)

Scaling laws for thermo-electric transport at quantum criticality
Jun 30, 2015

Kazunori Kohri (KEK)

Can we explain AMS-02 antiproton and positron excesses simultaneously by nearby supernovae without pulsars nor dark matter?
Jul 01, 2015

Richard de Grijs (KIAA)

Not-so-simple stellar populations in nearby, resolved massive star clusters
Jul 02, 2015

Takeshi Morita (Shizuoka U)

How does the black hole nature arise in supersymmetric gauge theories at strong coupling?
Jul 03, 2015

Daniele Faenzi (Bourgogne U) and **Zhen Hua** (HKU)

(Daniele Faenzi) Homological projective duality for determinantal varieties (Zheng Hua) Some geometric problems associated to the elliptic sklyanin algebras
Jul 06, 2015

Motoi Tachibana (Saga U)
Study of dense QCD matter and its application to physics of compact stars
Jul 06, 2015

Daniele Faenzi (Bourgogne U) and **Zhen Hua** (HKU)
(Daniele Faenzi) Homological projective duality for determinantal varieties (Zheng Hua) Some geometric problems associated to the elliptic sklyanin algebras
Jul 07, 2015

Sherry Suyu (ASIAA)
Hunting with CHITAH: Gravitationally Lensed Quasars for Cosmology
Jul 07, 2015

John Hernlund (ELSI)
Memories of a Planet (Q&A Session to be followed)
Jul 08, 2015

Tatsu Takeuchi (Virginia Tech)
Matter Effect from Non-Standard Interactions of the Neutrino
Jul 08, 2015

Fabian Kohlinger (Leiden Observatory)
Cosmological constraints from weak lensing: present measurements and future challenges
Jul 09, 2015

Volodymyr Takhistov (UC Irvine)
R Parity Violation From Discrete R Symmetries and Recent Nucleon Decay Searches in the Super-Kamiokande Experiment
Jul 15, 2015

Thomas Browder (Hawaii U)
B Physics: New Physics and the Next Generation
Jul 22, 2015

Nima Arkani-Hamed (IAS)
The future of collider physics
Jul 22, 2015

Nima Arkani-Hamed (IAS)
The Amplituhedron
Jul 23, 2015

Helen Davidge (Open U)
Initial results from a new AKARI/IRC data analysis pipeline optimised for extragalactic deep field images
Jul 23, 2015

Young-Kee Kim (U Chicago) and **John Ellis** (KCL)
LHC at 13 TeV: First collisions and future prospects
Jul 23, 2015

Gino Ishidori (UZH)
Pseudo-Observables in Higgs decays
Jul 27, 2015

Dionysios Theodoros Anninos (IAS)
Grassmann Matrix Quantum Mechanics
Jul 27, 2015

David Berenstein (UC Santa Barbara)
Extremal chiral ring states in AdS/CFT are described by free fermions
Jul 29, 2015

Andrew G. Akeroyd (U Southampton)
Phenomenology of the Higgs Triplet Model at the LHC
Jul 29, 2015

Ambrus Pal (Imperial College London)
Around de Jong's conjecture
Jul 29, 2015

Rennan Barkana (Tel Aviv U)
Observing the First Stars with 21-cm Cosmology
Jul 31, 2015

Beni Yoshida (Caltech)
Holographic quantum error-correcting codes: Toy models for the bulk/boundary correspondence
Aug 03, 2015

Tathagata Basak (Iowa State U)
Finding nice generators for braid-like groups
Aug 04, 2015

Joshua Qualls (NTU)
Probing spectral bounds from modular bootstrap
Aug 04, 2015

Oren Ben-Bassat (U Oxford)
Multiple Lagrangian Intersections
Aug 05, 2015

Kenji Kadota (IBS, Korea)
Particle cosmological probes on light dark matter
Aug 05, 2015

Tetsuji Kimura (Tsukuba U)
N=(4,4) gauged linear sigma model for exotic five-brane
Aug 06, 2015

Ivan Arraut (Tokyo Univ of Science / CAS)
The Higgs mechanism at the graviton level: The Vainshtein mechanism in time domains
Aug 11, 2015

Andrew Hearin (Yale U)
High-Precision Modeling of Cosmological Structure Formation: a Community-Driven Approach with Halotools
Aug 12, 2015

Che-Min Shen (LeCosPA)
Boundary effect of anomaly-induced action
Aug 12, 2015

Olivier Guyon (NAOJ Hawaii Observatory)
Coronagraphic Imaging of habitable exoplanets
Aug 24, 2015

Yoshinori Matsuo (Crete U.)
Hyperscaling-violating Lifshitz hydrodynamics from black-holes
Aug 27, 2015

Alexander Voronov (U Minnesota)
The BV and MV formalism for the Quantum Master Equation
Sep 01, 2015

Cedric Weiland (Universidad Autónoma de Madrid)
The CMS excess and lepton flavour violation in the (supersymmetric) inverse seesaw
Sep 02, 2015

Ayuki Kamada (UC Riverside)
Galactic Rotation Curves with Dark Matter Self-Interactions
Sep 03, 2015

Banerjee Shankha (Harish-Chandra Research Inst)
Heavy Higgs searches in a Higgs-portal B-L Model
Sep 04, 2015

Anatol Kirilov (Kyoto U)
Schubert, Dunkl, Grothendieck, Givental and Gromov and Witten Calculi for flag varieties
Sep 10, 2015

Yuji Tachikawa (U Tokyo)
Frozen
Sep 11, 2015

Simon Wood (ANU)
The Verlinde Formula in logarithmic conformal field theory
Sep 16, 2015

Wei-Chih Huang (TU Dortmund)
Two Higgs Doublets under Non-Abelian SU(2)_H
Sep 25, 2015

Gokce Basar (U Maryland)
Resurgence, exact quantization and complex instantons
Sep 28, 2015

Yuta Takahashi (CERN, CMS collaboration)
CMS recent results & Higgs CP study using HA → tau tau final state
Sep 28, 2015

Ryo Takahashi (Nagoya U)
Dimensions of derived categories of commutative rings
Sep 28, 2015

Yu-tin Huang (National Taiwan U)
Unitarization of gravity scattering amplitude
Sep 29, 2015

Nick Gnedin (Fermilab / U Chicago)
Cosmic Reionization On Computers
Sep 30, 2015

Nick Gnedin (Fermilab / U Chicago)
Cosmic Reionization on Computers 2. How to build a virtual universe
Oct 01, 2015

Artan Sheshmani (Ohio State U / Kavli IPMU)
On the proof of the S-duality modularity conjecture for the quintic threefold
Oct 01, 2015

Kazuya Yonekura (Kavli IPMU)
6d SCFTs and their compactifications
Oct 06, 2015

Elena Sorokina (Sternberg Astronomical Inst)
Expansion Opacity in Supernova Models: Line Lists and the Shape of Type Ia Supernova Light Curves
Oct 07, 2015

Danilo Marchesini (Tufts U)
The Growth of Today's Most Massive Galaxies over the Last 12.8 Gyr of Cosmic History
Oct 08, 2015

Sacha Davidson (Inst Nuclear Physics of Lyon / CNRS)
In the Alphabet of Bsm Curiosities, A is for Axion
Oct 09, 2015

Yakov Kononov (HSE, Moscow)
K. Saito structures and string theory
Oct 13, 2015

Alessandro Sonnenfeld (Kavli IPMU)
The Stellar IMF of Early-type Galaxies from Strong Gravitational Lensing
Oct 13, 2015

Pierre Schapira (U Paris VI)
Sheaves on Lorentzian manifolds
Oct 13, 2015

Nicolai Reshetikhin (UC Berkeley)
Introduction to BV quantization
Oct 13, 2015

Itamar Yaakov (Kavli IPMU)
Localization of 4d N=1 super-Yang-Mills on elliptic fibrations
Oct 14, 2015

Nicolai Reshetikhin (UC Berkeley)
Introduction to BV quantization
Oct 14, 2015

Nicolai Reshetikhin (UC Berkeley)
Introduction to BV quantization
Oct 15, 2015

Alexey Bondal (Kavli IPMU)
Flops and spherical functors
Oct 15, 2015

Nicolai Reshetikhin (UC Berkeley)
Introduction to BV quantization
Oct 16, 2015

Yong Tang (KIAS)
IceCube Events from Dark Matter through Right-handed Neutrino Portal
Oct 21, 2015

Maxim Barkov (RIKEN)
Close binary progenitors of gamma-ray bursts and hypernovae
Oct 22, 2015

Laura Lopez Honorez (Vrije Universiteit Brussel)
Scalar dark matter with coloured partner
Oct 23, 2015

Ana Ros Camacho (Institut de Mathématiques de Jussieu-Paris Rive Gauche)
Matrix factorizations and the Landau-Ginzburg/conformal field theory correspondence
Oct 27, 2015

Vadim Schechtman (Toulouse Mathematics Inst)
Cartan eigenvectors, Toda masses, and their q-deformations
Oct 27, 2015

Jin-beom Bae (Seoul National U)
Searching for 5-dimensional Nontrivial UV Fixed Point
Oct 28, 2015

Sachiko Kuroyanagi (Nagoya U)
Probing properties of cosmic strings through Pulsar Timing Arrays
Oct 28, 2015

Alan Guth (MIT)
Infinite Phase Space and the Two-Headed Arrow of Time
Oct 30, 2015

Carmelo Evoli (DESY)
Modeling cosmic-ray propagation in the Galaxy
Nov 02, 2015

Christoph Weniger (U Amsterdam)
Indirect searches for WIMP dark matter: Some signal candidates and many
Nov 04, 2015

Peter Koroteev (Perimeter Inst for Theoretical Physics)
Quantum Hydrodynamics from Large-n Supersymmetric Gauge Theories
Nov 04, 2015

Nobuchika Okada (U Alabama)
Running Non-Minimal Inflation with Stabilized Inflaton Potential
Nov 05, 2015

Anders Jerkstrand (Queens U Belfast)
The origin of the elements: direct nucleosynthesis constraints from supernovae
Nov 05, 2015

Felix Janda (IMJ-PRG)
A formula for the double ramification cycle
Nov 05, 2015

Tzu-Chiang Yuan (Academia Sinica)
Lepton Flavor Violating Processes in Mirror Fermion Model
Nov 06, 2015

Christopher Brav (HSE Moscow)
Calabi-Yau structures on dg categories and shifted symplectic structures on moduli
Nov 11, 2015

Yasushi Kuno (Osaka U)
Search for Muon to Electron Conversion at J-PARC — the COMET Experiment
Nov 11, 2015

Mariana Orellana (National U Rio Negro, Argentina)
Magnetar powered superluminous supernovae
Nov 11, 2015

Ken Chen (NAOJ)
The Cosmic Dawn : Physics of the First Luminous Objects
Nov 12, 2015

Yohsuke Imagi (Kavli IPMU)
Construction of Compact Special Lagrangian T2-conifolds
Nov 12, 2015

Cyril Closset (Simons Center for Geometry and Physics)
Localization on twisted spheres and supersymmetric GLSM in 2d
Nov 13, 2015

Michael Dine (SCIPP)
Stability in the Landscape
Nov 16, 2015

Jose Garmilla (Princeton U)
Star/Galaxy Separation and Mapping the Milky Way Halo in HSC
Nov 16, 2015

Shota Komatsu (Perimeter Inst)
Integrable Bootstrap for Structure Constants in N=4 SYM
Nov 18, 2015

Kenji Iohara (U Lyon1)
A Zm graded generalization of the Witt algebra and its representations
Nov 18, 2015

Neal Dalal (Illinois U)
Detecting dark matter substructure using dusty galaxies
Nov 19, 2015

Agnieszka Bodzenta (U Edinburgh)
Categorical approach to deformation theory
Nov 24, 2015

Simon White (Max-Planck- Inst für Astrophysik)
Preamble to CDM cosmogony: Theoretical overview
Nov 24, 2015

Alexei Rosly (ITEP / HSE, Moscow)
On Holomorphic Chern-Simons Theory in Twistor Space
Nov 24, 2015

Matthias Weissenbacher (Kavli IPMU)
Higher Derivative Terms in M-Theory Reductions
Nov 25, 2015

Aurora Meroni (U Southern Denmark)
An elementary Goldstone Higgs
Nov 25, 2015

Simon White (Max-Planck-Inst für Astrophysik)
The formation and evolution of the galaxy population
Nov 25, 2015

James Chan (ASIAA)
Searching for Strong Lenses to Probe Dark Matter Substructures
Nov 26, 2015

Simon White (Max-Planck-Inst für Astrophysik)
Non-linear structure formation: LCDM challenges and successes
Nov 26, 2015

Simon White (Max-Planck-Inst für Astrophysik)
Characterising the baryon content of galaxy halos through stacking analyses
Nov 26, 2015

Kavli IPMU astro group
Discussion meeting on cosmogony in the Λ CDM universe
Nov 27, 2015

Gerald Dunne (U Connecticut)
Resurgence and Non-perturbative Physics: Decoding the Path Integral
Nov 30, 2015

Sung-Soo Kim (KIAS)
5d/6d SCFTs and 5-brane (Tao) web diagrams
Dec 01, 2015

Ezra Getzler (Northwestern U)
The Batalin-Vilkovisky formalism of the spinning particle
Dec 01, 2015

Feng Luo (Kavli IPMU)
Gluing Coannihilation
Dec 02, 2015

Peter Behroozi (Space Telescope Science Inst)
Galaxy Formation in Dark Matter Halos from $z=15$ to $z=0$
Dec 03, 2015

Chengcheng Han (Kavli IPMU)
The top off shell effects on new physics search
Dec 03, 2015

David Stark (Kavli IPMU)
Local and Large-Scale Environmental Influences on Galaxy Gas Content
Dec 08, 2015

Silviu Pufu (Princeton U)
Accidental symmetries and the conformal bootstrap
Dec 08, 2015

Kyoung-Seog Lee (KIAS)
Quasiphantom categories in derived categories of surfaces isogenous to a higher product
Dec 08, 2015

David Morrison (UCSB)
Little string theories via F-theory
Dec 10, 2015

Jean-Luc Starck (CEA Saclay)
2D and 3D Mass mapping from weak lensing data
Dec 10, 2015

Evangelos Roufus (Kavli IPMU)
Weighted Compactifications of Configuration Spaces
Dec 10, 2015

Constantin Teleman (UC Berkeley)
Gauge Theory in 2 and 3 dimensions and categorical representations
Dec 14, 2015

Hee-Cheol Kim (Perimeter Inst)
Supersymmetric Casimir Energy and the Anomaly Polynomial
Dec 15, 2015

Keiji Oguiso (U Tokyo)
Some Examples of Projective 4-Folds with Primitive Automorphisms of Positive Entropy
Dec 21, 2015

Jason Evans (KIAS)
Affleck-Dine Sneutrino Inflation & SU(5) Grand Unification in Pure Gravity Mediation
Dec 24, 2015

Richard Eager (U Heidelberg)
Exponential Networks and BPS State Counting
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Seodong Shin (Indiana U)
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Jan 06, 2016

Dan Xie (Harvard U)
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Jan 07, 2016

Johan Samsing (Princeton U)
The role of General Relativity and stellar tides in few-body interactions involving stars, neutron stars, white-dwarfs and black holes
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Jorgen Rennemo (ASC Oxford)
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Slava Rychkov (CERN & U Paris 6)
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Yasuyuki Hatsuda (U Geneva)
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Jan 14, 2016

Petr Baklanov (ITEP Moscow)
Type II-P supernovae as primary distance indicators in cosmology
Jan 14, 2016

Carsten Rott (Sungkyunkwan U)
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Daniel Harlow (Center for the Fundamental Laws of Nature, Harvard U)
Wormholes, Emergent Gauge Fields, and the Weak Gravity Conjecture
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Timothy Logvinenko (Cardiff U)
P-functors
Jan 19, 2016

Mangesh Mandlik (TIFR)
A Charged Membrane Paradigm at Large D
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Shinya Kanemura (Toyama U)
Physics of extended Higgs sectors
Jan 20, 2016

Sam Jones (HITS)
Stars on death row
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Zheng Hua (U Hong Kong)
Contraction algebra and invariants of singularities
Jan 21, 2016

Philipp Edelmann (HITS)
Modeling Dynamic Phases in Stellar Evolution using Multidimensional Hydrodynamics Simulations
Jan 21, 2016

Tomotake Matsumura (ISAS/JAXA)
Physics of the early universe using the measurement of comics microwave background polarization and path forward in next 15 years using a satellite
Jan 22, 2016

Chan Youn Park (Rutgers U)
Stroll along the Walls with Python - BPS spectra of supersymmetric theories
Jan 25, 2016

Chris Belczynski (Warsaw U)
Comparison of LIGO / Virgo upper limits with predicted compact binary merger rates
Jan 27, 2016

Abby Crites (Caltech)
Probing the Early Universe: Innovative Approaches in Millimeter Wavelength Cosmology
Jan 28, 2016

Lorenzo Calibbi (Chinese Academy of Sciences)
Phenomenology of low-energy flavour models: rare processes and dark matter
Feb 02, 2016

Giuseppe Bono (U Rome Tor Vergata / U Tokyo)
A new spin on the stellar content of the Carina dSph galaxy
Feb 03, 2016

Hiro Tanaka (U British Columbia)
Towards the discovery of CP violation in neutrinos
Feb 03, 2016

Ying Zu (CMU)
Constrain Galaxy Formation Physics from Large-Scale Structure Measurements and Weak Lensing
Feb 04, 2016

Sheila Kannappan (U North Carolina)
The RESolved Spectroscopy Of a Local Volume (RESOLVE) Survey and its Environmental Context (ECO) Catalog
Feb 04, 2016

Denis Degtyarev (HSE, National Research U)
About the structure of the moduli space of Higgs pairs with nilpotent residues
 Feb 04, 2016

Marco Cirelli (LPTHE)
Minimal Dark Matter, reloaded
 Feb 05, 2016

Charles Melby-Thompson (Fudan U)
A Holographic Study of Chern-Simons Defects
 Feb 09, 2016

Vassili Gorbounov (U Aberdeen)
6 vertex quantum integrable system and cohomology of Grassmanian
 Feb 10, 2016

Junya Yagi (U Warsaw)
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 Feb 16, 2016

Romuald Janik (Jagiellonian U)
The $AdS_5 \times S^5$ String Field Theory vertex and integrability
 Feb 23, 2016

Xiaoyi Cui (U Göttingen)
Determinant line bundles, chiral fermions, and equivariant cohomology
 Feb 25, 2016

Tony Yue YU (Institut de Mathématiques de Jussieu - Paris Rive Gauche)
Counting open curves via closed curves
 Mar 01, 2016

Peter Nugent (LBNL)
The Palomar Transient Factory and the Discovery of Incredibly Young Supernova
 Mar 02, 2016

Cherniak Dmytro (Inst for Nuclear Research, Kyiv)
Study of double beta decay using $ZnMoO_4$ cryogenic scintillating bolometers and $^{110}CdWO_4$ crystal scintillators
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Chunshan Lin (YITP)
Inflationary Magnetogenesis with Broken Local $U(1)$ Symmetry
 Mar 04, 2016

David Poland (Yale U)
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 Mar 08, 2016

Jin Min Yang (ITP)
LHC 750 GeV diphoton excess and some interpretations
 Mar 09, 2016

Emanuelle Daddi (CEA-Saclay)
The wild youth of galaxy clusters
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Vincenzo Mainieri (ESO)
Future multi-objects spectrographs at ESO
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Maxim Zabzine (Uppsala U)
Exact results for 5D supersymmetric theories on toric manifolds
 Mar 15, 2016

John Ellis (KCL)
Perspectives for Particle Physics beyond the Standard Model
 Mar 16, 2016

Devendra Sahu (Indian Inst of Astrophysics, Bangalore)
Hydrogen deficient peculiar supernovae
 Mar 17, 2016

Nathan Seiberg (IAS)
(Lecture 1) Supersymmetry and its breaking
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Nathan Seiberg (IAS)
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Nathan Seiberg (IAS)
Where are we heading?
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Nathan Seiberg (IAS)
(Lecture 3) Anomalies, conformal manifolds, and spheres
 Mar 24, 2016

Tomohiro Fujita (Stanford U)
Large-scale magnetic fields can explain the baryon asymmetry of the universe
 Mar 24, 2016

Nathan Seiberg (IAS)
(Lecture 4) On gapped boundary phases of topological phases
 Mar 25, 2016

Simon Wood (ANU)
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Sakine Nishi (Rikkyo U)
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9 VISITORS

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Aaron, Knight
U Warwick
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Abigail, Crites
CALTECH
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Adrian, Lee
UC Berkeley
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Adrian, Pritchard
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Agnes, Dominjon
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Agnieszka, Maria Bodzenta-Skibinska
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2015/08/18–08/31, 11/12–11/29,
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Ahmet, Emir Gumrukcuoglu
U Nottingham
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Akihiko, Sonoda
Osaka U
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Akihiro, Ishibashi
Kinki U
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Akihiro, Minamino
Kyoto U
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Akimasa, Ishikawa
Tohoku U
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Akimichi, Taketa
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Akira, Ishii
Hiroshima U
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Akira, Konaka
TRIUMF
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Akira, Konno
U Tokyo, ICRR
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Akitaka, Ariga
U Bern
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Akito, Kusaka
Princeton U
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Al, Kogut
NASA/GSFC
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Alan, Guth
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Alessandro, Bravar
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Alessandro, Manzotti
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Alex, Mitov
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Alex, Pettitt
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2015/06/11

Alex, Takeda
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2015/07/21–08/02

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Alexander, Finch
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Alexander, Kusenko
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Alexander, Voronov
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Alexey, Rosly
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Ali, Mollabashi
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Alina, Kiessling
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Ambrus, Pal
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Ana Ros, Camacho
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Anatol, N. Kirillov
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Anatoly, Vershik
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Anders, Jerkstrand
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Andrea, Catalano
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Andrea, Ludovina Silva Bustamante
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2015/04/13–04/17, 04/21–04/24, 04/28,
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Andrei, Ionov
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Andrew, Bunker
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2015/07/13–07/22, 12/26–2016/01/13,
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Andrew, Hearin
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Anna, Mangilli
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Anton, Timur Jaelani
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Ari, Cukierman
UC Berkeley
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Aritoki, Suzuki
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Arpan, Bhattacharyya
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Ataru, Tanikawa
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Atsuko, Kibayashi
Okayama U
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Atsumu, Suzuki
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Atsushi, Nishizawa
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Atsushi, Takahashi
Osaka U
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Atsushi, Takeda
U Tokyo, ICRR
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Atsushi, Taruya
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Aurora, Meroni
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Aurora, Simionescu
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Ayuki, Kamada
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Bau-Ching, Hsieh
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Ben, Craps
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Beni, Yoshida
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Benjamin, Gammage
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Benjamin, Hennion
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Benjamin, McMillian
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Benjamin, Quilain
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Benjamin, Richards
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Benjamin, Westbrook
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Biswarup, Mukhopadhyaya
Harish-Chandra Res. Inst.
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Blair, Jamieson
U Winnipeg
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Blake, Sherwin
UC Berkeley
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Bob, Armstrong
Princeton U
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Bobae, Kim
Kyungpook National U
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Bojko, Bakalov
NC State U
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Brandon, Hensley
NASA JPL/Caltech
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Brendan, Crill
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Bruce, Berger
Colorado State U
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Bruno, Maffei
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Bryan, Webber
U Cambridge
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Bum-Hoon, Lee
Sogang U
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Yonsei U
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Carlo, Baccigalupi
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Carmelo, Evoli
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Caroline, Hamilton
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Carsten, Rott
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Cedric, Weiland
Instituto de Fisica Terica (IFT) UAM-CSIC in
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2015/09/02–09/04, 09/07–09/11, 09/02–
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Kenke, Xu
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Chakrabarty, Nabanur
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Chan, Youn Park
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Chandrachur, Chakraborty
Saha Institute of Nuclear Physics
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Chang, Ho Park
IBS
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Chao-Lin, Kuo
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Charles, Henry Simpson
U Oxford
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Charles, Milton Melby-Thompson
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Che, Min Shen
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Chenfang, Wang
IHEP, CAS
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Cheng-Wei, Chiang
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Chengcheng, Han
APCTP
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Chiaki, Kobayashi
CAR, U Hertfordshire
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Chien-i, Chiang
UC Berkeley
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Chihiro, Matsui
U Tokyo, IIS
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Chika, Hasegawa
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Chris, Belczynski
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Christian, Irmeler
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Christian, Klingenberg
U Wurzburg
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Christoph, Weniger
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Christopher, Brav
HSE, National Research University
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Christopher, W. Walter
Duke U
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Ciro, Riccio
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Constantin, Teleman
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Cora, Dvorkin
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Daisuke, Nakauchi
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Daniele, Bertolini
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Daniele, Faenzi
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Danilo, Marchesini
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David, Hadley
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David, Kaplan
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David, Payne
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David, Poland
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David, R. Morrison
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David, Sanders
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Deepanwita, Dutta
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Dipan, Sengupta
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Dmitri, Khveshchenko
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Dong, Ho Moon
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Dorival, Goncalves
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Doyoun, Kim
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Edward, Wright
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Eiichiro, Komatsu
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Elena, Sorokina
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Elisabeth, Werner
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Elizabeth, Tasker
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Emanuele, Daddi
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Emilio, Radicioni
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Enrique, Martinez-Gonzalez
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Eric, Hivon
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Eric, Kuflik
Cornell U
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Eric, Wilcots
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Erin, OSullivan
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Ezra, Getzler
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Fabian, Kohlinger
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Fabio, Henrique Iunes Sanches
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Felix, Janda
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Flavien, Vansyngel
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Flavio, Gatti
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Francisco-Shu, Kitaura
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Francois, Boulanger
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Francois, R. Bouchet
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Nagoya U
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Fumiya, Irie
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2015/04/15–04/16

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2015/12/10–12/16

Gerhard, Hensler
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Gino, Ishidori
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Han, Il Jang
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Hanako, Hoshino
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Hayato, Chiba
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Hiroaki, Kanai
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Hiroaki, Tahara
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Hiroaki, Yamamoto
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Hironao, Miyatake
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Hironori, Hoshino
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2015/05/25–05/29

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2015/06/29–07/01, 2016/01/31–02/02

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Osaka U
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U Tokyo, ICRR
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Nagoya U
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Hiroyuki, Umeeda
Hiroshima U
2015/12/19

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NAOJ
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Tokyo Metropolitan U
2015/04/13–04/14, 04/27–04/28, 05/11–
05/12, 05/18–05/19, 08/10–08/11, 08/17–
08/18, 09/28–09/29, 12/21–12/22,
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2015/05/25–05/29

Masahiko, Yamada
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2015/05/25–05/29, 2016/03/23

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Masao, Hayashi
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2015/10/08, 10/22

Masaru, Hongo
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2015/05/25–05/29

Masashi, Chiba
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Masashi, Hamanaka
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Masashi, Hazumi
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Masashi, Yokoyama
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2015/06/29–07/01, 2016/01/31–02/02

Masato, Kobayashi
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2015/05/25–05/29, 08/24

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Masato, Shiozawa
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Kyoto U
2016/03/22–03/24

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Masayo, Morioka
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Masayuki, Akiyama
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Tata Inst
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Princeton U
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LBNL
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U Tokyo, ICRR
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U Tokyo
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U Pittsburgh
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UC Berkeley
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U Oxford
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Samantha, Short
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Samantha, Stever
IAS
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Samrat, Bhowmick
IITM
2015/11/23–11/28

Sanjay, Rajaram Chendvankar
Tata Inst
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Sanshiro, Enomoto
U Washington, Seattle
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2016/02/07–02/14

Sara, Bolognesi
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Sarah, Kernasovskiy
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IMSc
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Sayuri, Takatori
Sokendai
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Sean, Hartnoll
Harvard U
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Sean, Jason Weinberg
UC Berkeley
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Sebastian, Suchitra
U Cambridge
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Sebastien, Peirani
IAP
2015/07/02, 2016/01/10–11/09

Seiko, Hirota
Kyoto U
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Seng, Pei Liew
U Tokyo
2015/09/07–09/11

Seong, Chan Park
Yonsei U Observatory
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Sergei, Blinnikov
ITEP
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Sergat, Suvorov
INR RAS
2016/01/31–02/02

Sergey, Galkin
HSE, National Research University
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SISSA
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KIAS
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Seungcheol, Lee
Kyungpook National U
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Seungwon, Baek
KIAS
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Harish-Chandra Res. Inst.
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Shaul, Hanany
U Minnesota
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Sheila, Kannappan
U North Carolina
2016/02/01–02/05

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ASIAA
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Shibo, Shu
NAOJ
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Shigeki, Hirose
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U Hawaii
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NAOJ
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U British Columbia
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U Tokyo, Math Sci
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ICU
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UC Berkeley
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UC Irvine
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2015/05/25–05/29

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MPI for Astrophysics
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ANU
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2015/05/25–05/29

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CENTRA / IST
2015/10/13–10/16

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Stephen, Bailey
LBNL
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U Kentucky
2015/05/25–05/29

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Suresh, Tanu Divekar
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2015/09/20–10/20

Surjeet, Rajendran
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2015/04/05–04/12

Svyatoslav, Pimenov
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Tadashi, Takayanagi
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Tadayuki, Kodama
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Taehun, Kim
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Takaaki, Nomura
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2015/12/13–12/16

Takashi, Hosokawa
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2015/07/23

Takashi, KANEKO
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Takashi, Kobayashi
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2015/06/29–07/01, 2016/01/31–02/02

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2015/05/25–05/29

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2015/06/29–07/01, 2016/01/31–02/02

Takatoshi, Shibuya
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Kitasato U
2015/12/11–12/13

Takeshi, Morita
Shizuoka U
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Taku, Ishida
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2015/06/29–07/01, 2016/01/31–02/02

Taku, Okamura
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2015/12/10–12/16

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2015/07/07–07/09

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2015/05/25–05/29

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2015/05/25–05/29

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2015/12/10–12/16

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2016/01/31–02/02

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U British Columbia
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Tomotake, Matsumura
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KEK
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U Ryukyu
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Rutherford Appleton Lab.
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RIKEN
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UC San Diego
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U Paul Sabatier
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Durham U
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Tata Inst
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U Aberdeen
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Victor, Przhlyalkovskiy (Przyjalkowski)
Steklov Math. Inst.
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Vincent, Vinnin
U Portsmouth
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INFN Bari
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Vincenzo, Mainieri
European Southern Observatory
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UC Irvine
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U Ottawa
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Laboratoire APC
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U Tokyo, ISSP
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Yonsei U Observatory
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Nat'l Taiwan U
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U Wisconsin, Madison
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U Tokyo, ICRR
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U Tokyo, IoA
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Yasuo, Tanaka
MPI for Extraterrestrial Physics
2015/10/18–10/19

Yasuyuki, Hatsuda
U Geneva
2016/01/12–01/15

Yeo Woong, Yoon
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Carnegie Mellon U
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2015/04/06–04/10, 04/13–04/17, 04/20–04/24, 05/11–05/22, 05/26–06/05, 06/15–06/19, 06/28–07/03, 07/06–07/10, 08/03–08/07, 08/10–08/12, 08/17–08/21

Yoshihiko, Oyama
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Yoshiki, Akiba
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Yoshitaro, Takaesu
U Tokyo
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Yoshiyuki, Inoue
JAXA
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Yosuke, Kida
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Okayama U
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U Tokyo
2016/01/31–02/02

Young-Kee, Kim
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2015/07/22–07/25

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KIPAC
2015/06/09–06/13

Yu, Niino
NAOJ
2015/11/13

Yu, Seon Jeong
Yonsei U Observatory
2015/09/07–09/11

Yu, Tian
Chinese Academy of Sciences
2015/05/25–05/29

Yu-tin, Huang
National Central University, Taiwan
2015/09/25–09/30

Yue, Feng
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2015/07/21–07/31

Yuichi, Fukazawa
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Yuichi, Harikane
U Tokyo, ICRR
2015/11/13

Yuichi, Hoshino
Kushiro Natl Coll of Tech
2015/05/25–05/29

Yuichi, Oyama
KEK
2015/06/29–07/01

Yuichiro, Hoshino
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2015/05/25–05/29

Yuichiro, Kiyo
Juntendo U
2015/12/19–2016/02/19

Yuji, Chinone
KEK
2015/09/18–09/22, 12/09–12/17,
2016/03/14–03/27

Yuji, Okajima
Tokyo Tech
2015/06/29–07/01, 2016/01/31–02/02

Yuji, Tachikawa
U Tokyo
2016/03/23

Yuki, Sakurai
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2015/12/10–12/16

Yuki, Tsutsui
ICU
2016/03/23

Yukihisa, Imamura
Kyoto U
2015/05/25–05/29, 2016/03/23

Yun-Long, Zhang
National Central University, Taiwan
2015/05/25–05/29

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INR RAS
2016/01/31–02/02

Yuri, Prokhorov
Michigan State U
2015/11/15–11/21

Yusei, Koyama
NAOJ
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2015/06/29–07/01, 2016/01/31–02/02

Yusuke, Suda
U Tokyo
2015/06/29–07/01, 2016/01/31–02/02

Yuta, Orikasa
KIAS
2015/09/07–09/11

Yuta, Takahashi
CERN
2015/09/28

Yutaka, Ushiroda
KEK
2015/08/26, 12/02, 12/09, 12/19,
2016/01/15

Yutaka, Yoshida
KIAS
2016/03/23

Yutaro, Sekimoto
NAOJ
2015/12/10–12/16

Yutaro, Sonoda
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Yuuki, Shiraishi
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2015/04/19–04/25, 11/16–11/20,
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Yuuko, Segawa
Sokendai
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Yuushi, Sato
U Tokyo
2015/12/10, 2016/03/02, 03/17

Zabzine, Max
Uppsala U
2016/03/12–03/16

Zhang-Yu, Nie
KUST
2015/05/25–05/29

Zhaofeng, Kang
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2015/09/07–09/11

Zheng, Hua
HKU
2015/06/01–07/31, 2016/01/21

Zhong, Fang
Chinese Academy of Sciences
2015/05/25–05/29

10 PUBLICATIONS

FY2015

1. Can thermal inflation be consistent with baryogenesis in gauge-mediated SUSY breaking models?
Hayakawa, T; Kawasaki, M; Yamada, M
PHYSICAL REVIEW D 93 (2016) 63529
2. Hyperon puzzle, hadron-quark crossover and massive neutron stars
Masuda, K; Hatsuda, T; Takatsuka, T
EUROPEAN PHYSICAL JOURNAL A 52 (2016) 65
3. Anisotropies of Gravitational-Wave Standard Sirens as a New Cosmological Probe without Redshift Information
Namikawa, T; Nishizawa, A; Taruya, A
PHYSICAL REVIEW LETTERS 116 (2016) 121302
4. Revisiting R-invariant direct gauge mediation
Chiang, CW; Harigaya, K; Ibe, M; Yanagida, TT
JOURNAL OF HIGH ENERGY PHYSICS 3 (2016) 145
5. Mass ejection by pulsational pair instability in very massive stars and implications for luminous supernovae
Yoshida, T; Umeda, H; Maeda, K; Ishii, T
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 457 (2016) pp.351-361
6. NEUTRINO-DRIVEN CONVECTION IN CORE-COLLAPSE SUPERNOVAE: HIGH-RESOLUTION SIMULATIONS
Radice, D; Ott, CD; Abdikamalov, E; Couch, SM; Haas, R; Schnetter, E
ASTROPHYSICAL JOURNAL 820 (2016) 76
7. TYPE II SUPERNOVA ENERGETICS AND COMPARISON OF LIGHT CURVES TO SHOCK-COOLING MODELS
Rubin, A; Gal-Yam, A; De Cia, A; Horesh, A; Khazov, D; Ofek, EO; Kulkarni, SR; Arcavi, I; Manulis, I; Yaron, O; Vreeswijk, P; Kasliwal, MM; Ben-Ami, S; Perley, DA; Cao, Y; Cenko, SB; Rebbapragada, UD; Wozniak, PR; Filippenko, AV; Clubb, KI; Nugent, PE; Pan, YC; Badenes, C; Howell, DA; Valenti, S; Sand, D; Sollerman, J; Johansson, J; Leonard, DC; Horst, JC; Armen, SF; Fedrow, JM; Quimby, RM; Mazzali, P; Pian, E; Sternberg, A; Matheson, T; Sullivan, M; Maguire, K; Lazarevic, S
ASTROPHYSICAL JOURNAL 820 (2016) 33
8. Effective field theory of broken spatial diffeomorphisms
Lin, CS; Labun, LZ
JOURNAL OF HIGH ENERGY PHYSICS 3 (2016) 128
9. Implications of the 750 GeV diphoton excess in gaugino mediation
Han, CC; Yanagida, TT; Yokozaki, N
PHYSICAL REVIEW D 93 (2016) 55025
10. High-scale SUSY from an R-invariant new inflation in the landscape
Kawasaki, M; Yamada, M; Yanagida, TT; Yokozaki, N
PHYSICAL REVIEW D 93 (2016) 55022
11. Central mass profiles of the nearby cool-core galaxy clusters Hydra A and A478
Okabe, N; Umetsu, K; Tamura, T; Fujita, Y; Takizawa, M; Matsushita, K; Fukazawa, Y; Futamase, T; Kawaharada, M; Miyazaki, S; Mochizuki, Y; Nakazawa, K; Ohashi, T; Ota, N; Sasaki, T; Sato, K; Tam, SI
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 456 (2016) pp.4475-4487
12. KROSS: mapping the Ha emission across the star formation sequence at $z \approx 1$
Magdis, GE; Bureau, M; Stott, JP; Tiley, A; Swinbank, AM; Bower, R; Bunker, AJ; Jarvis, M; Johnson, H; Sharples, R
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 456 (2016) pp.4533-4541
13. PRECISE STRONG LENSING MASS MODELING OF FOUR HUBBLE FRONTIER FIELD CLUSTERS AND A SAMPLE OF MAGNIFIED HIGH-REDSHIFT GALAXIES
Kawamata, R; Oguri, M; Ishigaki, M; Shimasaku, K; Ouchi, M
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14. ON DETECTING HALO ASSEMBLY BIAS WITH GALAXY POPULATIONS
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15. SPATIALLY RESOLVED SPECTROSCOPY OF A BALMER-DOMINATED SHOCK IN THE CYGNUS LOOP: AN EXTREMELY THIN COSMIC-RAY PRECURSOR?
Katsuda, S; Maeda, K; Ohira, Y; Yatsu, Y; Mori, K; Aoki, W; Morihana, K; Raymond, JC; Ghavamian, P; Lee, JJ; Shimoda, J; Yamazaki, R
ASTROPHYSICAL JOURNAL LETTERS 819 (2016) L32
16. Separate universe consistency relation and calibration of halo bias
Li, Y; Hu, W; Takada, M
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17. Affleck-Dine leptogenesis and its backreaction to inflaton dynamics
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PHYSICS LETTERS B 754 (2016) pp.208-213
18. Renormalized entanglement entropy on cylinder
Banerjee, S; Nakaguchi, Y; Nishioka, T
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19. Prospects for Higgs- and Z-resonant neutralino dark matter
Hamaguchi, K; Ishikawa, K
PHYSICAL REVIEW D 93 (2016) 55009
20. Perverse sheaves over real hyperplane arrangements
Kapranov, M; Schechtman, V
ANNALS OF MATHEMATICS 183 (2016) pp.619-679
21. Primordial trispectra and CMB spectral distortions
Bartolo, N; Liguori, M; Shiraiishi, M
JOURNAL OF COSMOLOGY AND ASTROPARTICLE PHYSICS 3 (2016) 29
22. Axino dark matter and baryon number asymmetry production by the Q-ball decay in gauge mediation
Kasuya, S; Kawakami, E; Kawasaki, M; Mizuk, R; Mohanty, GB; Moll, A; Mussa, R; Nakao, M; Natkaniec, Z; Nayak, M; Nedelkovska, E; Nisar, NK; Nishida, S; Nitoh, O; Ogawa, S; Pakhlov, P; Park, H; Park, HK; Pedlar, TK; Peng, T; Pestotnik, R; Petric, M; Pilonen, LE; Ribezl, E; Ritter, M; Rohrken, M; Rostomyan, A; Sahoo, H; Saito, T; Sakai, Y; Sandilya, S; Santel, D; Santelj, L; Sanuki, T; Savinov, V; Schneider, O; Schnell, G; Schwanda, C; Schwartz, AJ; Seidl, R; Semmler, D; Senyo, K; Sevier, ME; Shapkin, M; Shen, CP; Shibata, TA; Shiu, JG; Shwartz, B; Sibidanov, A; Simon, F; Sohn, YS; Sokolov, A; Solovieva, E; Stanic, S; Staric, M; Sumiyoshi, T; Tamponi, U; Tatishvili, G; Teramoto, Y; Trabelsi, K; Uchida, M; Uehara, S; Uglov, T; Unno, Y; Uno, S; Urquijo, P; Ushiroda, Y; Usov, Y; Vahsen, SE; Van Hulse, C; Vanhoefler, P; Varner, G; Varvell, KE; Vorobyev, V; Wang, CH; Wang, MZ; Wang, P; Wang, XL; Watanabe, Y; Won, E; Yamaoka, J; Yamashita, Y; Yashchenko, S; Yook, Y; Zhang, ZP; Zhilich, V; Zhulanov, V; Zupanc, A
PHYSICAL REVIEW D 93 (2016) 32008
23. THE CHANDRA COSMOS LEGACY SURVEY: OVERVIEW AND POINT SOURCE CATALOG
Civano, F; Marchesi, S; Comastri, A; Urry, MC; Elvis, M; Cappelluti, N; Puccetti, S; Brusa, M; Zamorani, G; Hasinger, G; Aldcroft, T; Alexander, DM; Allevaro, V; Brunner, H; Capak, P; Finoguenov, A; Fiore, F; Fruscione, A; Gilli, R; Glotfelty, K; Griffiths, RE; Hao, H; Harrison, FA; Jahnke, K; Kartaltepe, J; Karim, A; LaMassa, SM; Lanzuisi, G; Miyaji, T; Ranalli, P; Salvato, M; Sargent, M; Scoville, NJ; Schawinski, K; Schinnerer, E; Silverman, J; Smolcic, V; Stern, D; Toft, S; Trakhenbrot, B; Treister, E; Vignali, C
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24. THE X-RAY ZURICH ENVIRONMENTAL STUDY (X-ZENS). II. X-RAY OBSERVATIONS OF THE DIFFUSE INTRAGROUP MEDIUM IN GALAXY GROUPS
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25. PROPERTIES OF THE INTERSTELLAR MEDIUM IN STAR-FORMING GALAXIES AT z similar to 1.4 REVEALED WITH ALMA
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26. RAPIDLY RISING TRANSIENTS FROM THE SUBARU HYPER SUPRIME-CAM TRANSIENT SURVEY
Tanaka, M; Tominaga, N; Morokuma, T; Yasuda, N; Furusawa, H; Baklanov, PV; Blinnikov, SI; Moriya, TJ; Doi, M; Jiang, J; Kato, T; Kikuchi, Y; Kuncarayakti, H; Nagao, T; Nomoto, K; Taniguchi, Y
ASTROPHYSICAL JOURNAL 819 (2016) 5
27. Linking 1D evolutionary to 3D hydrodynamical simulations of massive stars
Cristini, A; Meakin, C; Hirschi, R; Arnett, D; Georgy, C; Viallet, M
PHYSICA SCRIPTA 91 (2016) 34006
28. JELLYFISH GALAXY CANDIDATES AT LOW REDSHIFT
Poggianti, BM; Fasano, G; Omizzolo, A; Gullieuszi, M; Bettoni, D; Moretti, A; Paccagnella, A; Jaffe, YL; Vulcani, B; Fritz, J; Couch, W; D'Onofrio, M
ASTRONOMICAL JOURNAL 151 (2016) 78
29. The host galaxy of a fast radio burst
Keane, EF; Johnston, S; Bhandari, S; Barr, E; Bhat, NDR; Burgay, M; Caleb, M; Flynn, C; Jameson, A; Kramer, M; Petroff, E; Possenti, A; van Straten, W; Bailes, M; Burke-Spolaor, S; Eatough, RP; Stappers, BW; Totani, T; Honma, M; Furusawa, H; Hattori, T; Morokuma, T; Niino, Y; Sugai, H; Terai, T; Tominaga, N; Yamasaki, S; Yasuda, N; Allen, R; Cooke, J; Jencson, J; Kasliwal, MM; Kaplan, DL; Tingay, SJ; Williams, A; Wayth, R; Chandra, P; Perrodin, D; Berezina, M; Mickaliger, M; Bassa, C
NATURE 530 (2016) pp.453-456
30. Measurement of the lepton forward-backward asymmetry in $B \rightarrow X_s \ell^+ \ell^-$ decays with a sum of exclusive modes
Sato, Y; Ishikawa, A; Yamamoto, H; Abdesselam, A; Adachi, I; Adamczyk, K; Aihara, H; Asner, DM; Aulchenko, V; Aushev, T; Ayad, R; Bakich, AM; Bala, A; Bhardwaj, V; Bhuyan, B; Bondar, A; Bonvicini, G; Bozek, A; Bracko, M; Browder, TE; Cervenkov, D; Chekelian, V; Chen, A; Cheon, BG; Cho, IS; Cho, K; Chobanova, V; Choi, Y; Cinabro, D; Dalseno, J; Danilov, M; Dolezal, Z; Drasal, Z; Drutskey, A; Dutta, D; Dutta, K; Eidelman, S; Farhat, H; Fast, JE; Ferber, T; Gaur, V; Garmash, A; Gillard, R; Goh, YM; Golob, B; Haba, J; Hara, T; Hayasaka, K; Hayashii, H; He, XH; Hoshi, Y; Hou, WS; Hyun, HJ; Iijima, T; Itoh, R; Iwasaki, Y; Iwashita, T; Jaegle, I; Julius, T; Kang, JH; Kato, E; Kato, Y; Kawai, H; Kawasaki, T; Kichimi, H; Kim, DY; Kim, HJ; Kim, JB; Kim, JH; Kim, MJ; Kim, YJ; Kinoshita, K; Klucar, J; Ko, BR; Kodys, P; Korpar, S; Krizan, P; Krokovny, P; Kühr, T; Kumita, T; Kuzmin, A; Kwon, YJ; Lee, SH; Li, Y; Libby, J; Liu, C; Liu, Y; Liu, ZQ; Liventsev, D; Lukin, P; Miyata,
31. Gravitational waves from the first order phase transition of the Higgs field at high energy scales
Jinno, R; Nakayama, K; Takimoto, M
PHYSICAL REVIEW D 93 (2016) 45024
32. The KMOS AGN Survey at High redshift (KASHz): the prevalence and drivers of ionized outflows in the host galaxies of X-ray AGN
Harrison, CM; Alexander, DM; Mullaney, JR; Stott, JP; Swinbank, AM; Arumugam, V; Bauer, FE; Bower, RG; Bunker, AJ; Sharples, RM
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 456 (2016) pp.1195-1220
33. The SDSS-III BOSS quasar lens survey: discovery of 13 gravitationally lensed quasars
More, A; Oguri, M; Kayo, I; Zinn, J; Strauss, MA; Santiago, BX; Mosquera, AM; Inada, N; Kochanek, CS; Rusu, CE; Brownstein, JR; da Costa, LN; Kneib, JP; Maia, MAG; Quimby, RM; Schneider, DP; Streblyanska, A; York, DG
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 456 (2016) pp.1595-1606
34. s-process production in rotating massive stars at solar and low metallicities
Frischknecht, U; Hirschi, R; Pignatari, M; Maeder, A; Meynet, G; Chiappini, C; Thielemann, FK; Rauscher, T; Georgy, C; Ekstrom, S
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 456 (2016) pp.1803-1825
35. Black hole formation and growth with non-Gaussian primordial density perturbations
Habouzit, M; Volonteri, M; Latif, M; Nishimichi, T; Peirani, S; Dubois, Y; Mamon, GA; Silk, J; Chevillard, J
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 456 (2016) pp.1901-1912
36. ZENS. IV. SIMILAR MORPHOLOGICAL CHANGES ASSOCIATED WITH MASS QUENCHING AND ENVIRONMENT QUENCHING AND THE RELATIVE IMPORTANCE OF BULGE GROWTH VERSUS THE FADING OF DISKS
Carollo, CM; Cibinel, A; Lilly, SJ; Pipino, A; Bonoli, S; Finoguenov, A; Miniati, F; Norberg, P; Silverman, JD
ASTROPHYSICAL JOURNAL 818 (2016) 180
37. Monte Carlo Bayesian search for the plausible source of the Telescope Array hotspot
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38. Prospects for spin-1 resonance search at 13 TeV LHC and the ATLAS diboson excess
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39. *y* LoCuSS: Testing hydrostatic equilibrium in galaxy clusters
Smith, GP; Mazzotta, P; Okabe, N; Ziparo, F; Mulroy, SL; Babul, A; Finoguenov, A; McCarthy, IG; Lieu, M; Bahe, YM; Bourdin, H; Evrard, AE; Futamase, T; Haines, CP; Jauzac, M; Marrone, DP; Martino, R; May, PE; Taylor, JE; Umetsu, K
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 456 (2016) pp.L74-L78
40. KamLAND SENSITIVITY TO NEUTRINOS FROM PRE-SUPERNOVA STARS
Asakura, K; Gando, A; Gando, Y; Hachiya, T; Hayashida, S; Ikeda, H; Inoue, K; Ishidoshiro, K; Ishikawa, T; Ishio, S; Koga, M; Matsuda, S; Mitsui, T; Motoki, D; Nakamura, K; Obara, S; Oura, T; Shimizu, I; Shirahata, Y; Shirai, J; Suzuki, A; Tachibana, H; Tamae, K; Ueshima, K; Watanabe, H; Xu, BD; Kozlov, A; Takemoto, Y; Yoshida, S; Fushimi, K; Piepke, A; Banks, TI; Berger, BE; Fujikawa, BK; O'Donnell, T; Learned, JG; Maricic, J; Matsuno, S; Sakai, M; Winslow, LA; Efremenko, Y; Karwowski, HJ; Markoff, DM; Tornow, W; Detwiler, JA; Enomoto, S; Decowski, MP
ASTROPHYSICAL JOURNAL 818 (2016) 91
41. THE IMPACT OF NONLINEAR STRUCTURE FORMATION ON THE POWER SPECTRUM OF TRANSVERSE MOMENTUM FLUCTUATIONS AND THE KINETIC SUNYAEV-ZEL'DOVICH EFFECT
Park, H; Komatsu, E; Shapiro, PR; Koda, J; Mao, Y
ASTROPHYSICAL JOURNAL 818 (2016) 37
42. THE GRISM LENS-AMPLIFIED SURVEY FROM SPACE (GLASS). III. A CENSUS OF Ly alpha EMISSION AT z greater than or similar to 7 FROM HST SPECTROSCOPY
Schmidt, KB; Treu, T; Bradac, M; Vulcani, B; Huang, KH; Hoag, A; Maseda, M; Guaita, L; Pentericci, L; Brammer, GB; Dijkstra, M; Dressler, A; Fontana, A; Henry, AL; Jones, TA; Mason, C; Trenti, M; Wang, X
ASTROPHYSICAL JOURNAL 818 (2016) 38
43. Cosmological problems of the string axion alleviated by high scale SUSY of $m_{3/2} \approx 10$ -100 TeV
Kawasaki, M; Yanagida, TT; Yokozaki, N
PHYSICS LETTERS B 753 (2016) pp.389-394
44. Suppressing the QCD axion abundance by hidden monopoles
Kawasaki, M; Takahashi, F; Yamada, M
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45. Cosmologically Safe QCD Axion without Fine-Tuning
Yamada, M; Yanagida, TT; Yonekura, K
PHYSICAL REVIEW LETTERS 116 (2016) 51801
46. Probing cosmology with weak lensing selected clusters. II. Dark energy and $f(R)$ gravity models
Shirasaki, M; Hamana, T; Yoshida, N
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47. Hadron-quark crossover and hot neutron stars at birth
Masuda, K; Hatsuda, T; Takatsuka, T
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48. Logarithmic divergences in the k -inflationary power spectra computed through the uniform approximation
Alinea, AL; Kubota, T; Naylor, W
JOURNAL OF COSMOLOGY AND ASTROPARTICLE PHYSICS 2 (2016) 28
49. Curvature perturbation and domain wall formation with pseudo scaling scalar dynamics
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50. Spatially covariant theories of gravity: disformal transformation, cosmological perturbations and the Einstein frame
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51. Disappearing inflaton potential via heavy field dynamics
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52. Reheating signature in the gravitational wave spectrum from self-ordering scalar fields
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53. Thermalization process after inflation and effective potential of scalar field
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54. Constraints on the neutrino parameters by future cosmological 21 cm line and precise CMB polarization observations
Oyama, Y; Kohri, K; Hazumi, M
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55. Large scale CMB anomalies from thawing cosmic strings
Ringeval, C; Yamauchi, D; Yokoyama, J; Bouchet, FR
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56. XMASS MC simulation
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57. XMASS detector calibration using a neutron source
Ichimura, K
JOURNAL OF INSTRUMENTATION 11 (2016) C02034
58. THE SDSS-IV EXTENDED BARYON OSCILLATION SPECTROSCOPIC SURVEY: OVERVIEW AND EARLY DATA
Dawson, KS; Kneib, JP; Percival, WJ; Alam, S; Albareti, FD; Anderson, SF; Armengaud, E; Aubourg, E; Bailey, S; Bautista, JE; Berlind, AA; Bershadsky, MA; Beutler, F; Bizyaev, D; Blanton, MR; Blomqvist, M; Bolton, AS; Boyy, J; Brandt, WN; Brinkmann, J; Brownstein, JR; Burtin, E; Busca, NG; Cai, Z; Chuang, CH; Clerc, N; Comparat, J; Cope, F; Croft, RAC; Cruz-Gonzalez, I; da Costa, LN; Cousinou, MC; Darling, J; de la Macorra, A; de la Torre, S; Delubac, T; des Bourboux, HD; Dwelly, T; Ealet, A; Eisenstein, DJ; Eracleous, M; Escoffier, S; Fan, XH; Finoguenov, A; Font-Ribera, A; Frinchaboy, P; Gaulme, P; Georgakakis, A; Green, P; Guo, H; Guy, J; Ho, S; Holder, D; Huehnerhoff, J; Hutchinson, T; Jing, YP; Jullo, E; Kamble, V; Kinemuchi, K; Kirkby, D; Kitaura, FS; Klaene, MA; Laher, RR; Lang, D; Laurent, P; Le Goff, JM; Li, C; Liang, Y; Lima, M; Lin, Q; Lin, W; Lin, YT; Long, DC; Lundgren, B; MacDonald, N; Maia, MAG; Malanushenko, E; Malanushenko, V; Mariappan, V; McBride, CK; McGreer, ID; Menard, B; Merloni, A; Meza, A; Montero-Dorta, AD; Muna, D; Myers, AD; Nandra, K; Naugle, T; Newman, JA; Noterdaeme, P; Nugent, P; Ogando, N; Olmstead, MD; Oravetz, A; Oravetz, DJ; Padmanabhan, N; Palanque-Delabrouille, N; Pan, K; Parejko, JK; Paris, I; Peacock, JA; Petitjean, P; Pieri, MM; Pisani, A; Prada, F; Prakash, A; Raichoor, A; Reid, B; Rich, J; Ridl, J; Rodriguez-Torres, S; Rossell, AC; Ross, AJ; Rossi, G; Ruan, J; Salvato, M; Sayres, C; Schneider, DP; Schlegel, DJ; Seljak, U; Seo, HJ; Sesar, B; Shandera, S; Shu, YP; Slosar, A; Sobreira, F; Streblyanska, A; Suzuki, N; Taylor, D; Tao, C; Tinker, JL; Tojeiro, R; Vargas-Magana, M; Wang, YT; Weaver, BA; Weinberg, DH; White, M; Wood-Vasey, WM; Yeche, C; Zhai, ZX; Zhao, C; Zhao, GB; Zheng, Z; Zhu, GB; Zou, H
ASTRONOMICAL JOURNAL 151 (2016) 44
59. Quiver Hecke superalgebras
Kang, SJ; Kashiwara, M; Tsuchioka, S
JOURNAL FÜR DIE REINE UND ANGEWANDTE MATHEMATIK 711 (2016) pp.1-54
60. Dust attenuation in $z \sim 1$ galaxies from *Herschel* and 3D-HST $H\alpha$ measurements
Puglisi, A; Rodighiero, G; Franceschini, A; Talia, M; Cimatti, A; Baronchelli, I; Daddi, E; Renzi, A; Schawinski, K; Mancini, C; Silverman, J; Gruppioni, C; Lutz, D; Berta, S; Oliver, SJ
ASTRONOMY & ASTROPHYSICS 586 (2016) A83
61. SHADOW OF A COLOSSUS: A $z=2.44$ GALAXY PROTOCLUSTER DETECTED IN 3D Ly alpha FOREST TOMOGRAPHIC MAPPING OF THE COSMOS FIELD
Lee, KG; Hennawi, JF; White, M; Prochaska, JX; Font-Ribera, A; Schlegel, DJ; Rich, RM; Suzuki, N; Stark, CW; Le Fevre, O; Nugent, PE; Salvato, M; Zamorani, G
ASTROPHYSICAL JOURNAL 817 (2016) 160
62. THE SPLASH SURVEY: QUIESCENT GALAXIES ARE MORE STRONGLY CLUSTERED BUT ARE NOT NECESSARILY LOCATED IN HIGH-DENSITY ENVIRONMENTS
Lin, L; Capak, PL; Laigle, C; Ilbert, O; Hsieh, BC; Jian, HY; Lemaux, BC; Silverman, JD; Coupon, J; McCracken, HJ; Hasinger, G; Le Fevre, O; Scoville, N
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63. ELECTRON-CAPTURE AND beta-DECAY RATES FOR sd-SHELL NUCLEI IN STELLAR ENVIRONMENTS RELEVANT TO HIGH-DENSITY O-NE-MG CORES
Suzuki, T; Toki, H; Nomoto, K
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64. A LUMINOUS PECULIAR TYPE IA SUPERNOVA SN 2011HR: MORE LIKE SN 1991T OR SN 2007if?
Zhang, JJ; Wang, XF; Sasdelli, M; Zhang, TM; Liu, ZW; Mazzali, PA; Meng, XC; Maeda, K; Chen, JC; Huang, F; Zhao, XL; Zhang, KC; Zhai, Q; Pian, E; Wang, B; Chang, L; Yi, WM; Wang, CJ; Wang, XL; Xin, YX; Wang, JG; Lun, BL; Zheng, XM; Zhang, XL; Fan, YF; Bai, JM
ASTROPHYSICAL JOURNAL 817 (2016) 114
65. Phase Boundaries in Algebraic Conformal QFT
Bischoff, M; Kawahigashi, Y; Longo, R; Rehren, KH
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66. Search for double-beta decay of ^{136}Xe to excited states of ^{136}Ba with the KamLAND-Zen experiment
Asakura, K; Gando, A; Gando, Y; Hachiya, T; Hayashida, S; Ikeda, H; Inoue, K; Ishidoshiro, K; Ishikawa, T; Ishio, S; Koga, M; Matsuda, S; Mitsui, T; Motoki, D; Nakamura, K; Obara, S; Otani, M; Oura, T; Shimizu, I; Shirahata, Y; Shirai, J; Suzuki, A; Tachibana, H; Tamae, K; Ueshima, K; Watanabe, H; Xu, BD; Yoshida, H; Kozlov, A; Takemoto, Y; Yoshida, S; Fushimi, K; Banks, TI; Berger, BE; Fujikawa, BK; O'Donnell, T; Winslow, LA; Efremenko, Y; Karwowski, HJ; Markoff, DM; Tornow, W; Detwiler, JA; Enomoto, S; Decowski, MP
NUCLEAR PHYSICS A 946 (2016) pp.171-181
67. The geometry of gravitational lensing magnification
Aazami, AB; Werner, MC
JOURNAL OF GEOMETRY AND PHYSICS 100 (2016) pp.52-61
68. Star formation in quasar hosts and the origin of radio emission in radio-quiet quasars
Zakamska, NL; Lampayan, K; Petric, A; Dicken, D; Greene, JE; Heckman, TM; Hickox, RC; Ho, LC; Krolik, JH; Nesvadba, NPH; Strauss, MA; Geach, JE; Oguri, M; Strateva, IV
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 455 (2016) pp.4191-4211
69. Relationship between the CMB, Sunyaev-Zel'dovich cluster counts, and local Hubble parameter measurements in a simple void model
Ichiki, K; Yoo, CM; Oguri, M
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70. Upper bound on neutrino mass based on T2K neutrino timing measurements
Abe, K; Adam, J; Aihara, H; Akiri, T; Andreopoulos, C; Aoki, S; Ariga, A; Assylbekov, S; Autiero, D; Barbi, M; Barker, GJ; Barr, G; Bartet-Friburg, P; Bass, M; Batkiewicz, M; Bay, F; Berardi, V; Berger, BE; Berkman, S; Bhadra, S; Blaszczak, FDM; Blondel, A; Bojchko, C; Bolognesi, S; Bordoni, S; Boyd, SB; Brailsford, D; Bravar, A; Bronner, C; Buchanan, N; Calland, RG; Rodriguez, JC; Cartwright, SL; Castillo, R; Catanesi, MG; Cervera, A; Cherdack, D; Chikuma, N; Christodoulou, G; Clifton, A; Coleman, J; Coleman, SJ; Collazuol, G; Connolly, K; Cremonesi, L; Dabrowska, A; Danko, I; Das, R; Davis, S; de Perio, P; De Rosa, G; Dealtry, T; Dennis, SR; Densham, C; Dewhurst, D; Di Lodovico, F; Di Luise, S; Dolan, S; Drapier, O; Dubovsky, T; Duffy, K; Dumarchez, J; Dytman, S; Dziewiecki, M; Emery-Schrenk, S; Ereditato, A; Escudero, L; Feusels, T; Finch, AJ; Fiorentini, GA; Friend, M; Fujii, Y; Fukuda, Y; Furmanski, AP; Galymov, V; Garcia, A; Giffin, S; Giganti, C; Gilje, K; Goeldi, D; Golan, T; Gonin, M; Grant, N; Gudim, D; Hadley, DR; Haegel, L; Haesler, A; Haigh, MD; Hamilton, P; Hansen, D; Hara, T; Hartz, M; Hasegawa, T; Hastings, NC; Hayashino, T; Hayato, Y; Hearty, C; Helmer, RL; Hierholzer, M; Hignight, J; Hillairet, A; Himmel, A; Hiraki, T; Hirota, S; Holeczek, J; Horikawa, S; Hosomi, F; Huang, K; Ichikawa, AK; Ieki, K; Ieva, M; Ikeda, M; Imber, J; Insler, J; Irvine, TJ; Ishida, T; Ishii, T; Iwai, E; Iwamoto, K; Iyogi, K; Izmaylov, A; Jacob, A; Jamieson, B; Jiang, M; Johnson, RA; Johnson, S; Jo, JH; Jonsson, P; Jung, CK; Kabirnezhad, M; Kaboth, AC; Kajita, T; Kakuno, H; Kameda, J; Kanazawa, Y; Karlen, D; Karpikov, I; Katori, T; Kearns, E; Khabibullin, M; Khotjantsev, A; Kielczewska, D; Kikawa, T; Kilinski, A; Kim, J; King, S; Kisiel, J; Kitching, P; Kobayashi, T; Koch, L; Koga, T; Kolaceke, A; Konaka, A; Kopylov, A; Kormos, LL; Korzenew, A; Koshio, Y; Kropp, W; Kubo, H; Kudenko, Y; Kurjata, R; Kutter, T; Lagoda, J; Lamont, I; Larkin, E; Laveder, M; Lawe, M; Lazos, M; Lindner, T; Lister, C; Litchfield, RP; Longhin, A; Lopez, JP; Ludovici, L; Magaletti, L; Mahn, K; Malek, M; Manly, S; Marino, AD; Marteau, J; Martin, JF; Martins, P; Martynenko, S; Maruyama, T; Matveev, V; Mavrokoridis, K; Mazzucato, E; McCarthy, M; McCauley, N; McFarland, KS; McGrew, C; Mefodiev, A; Metelko, C; Mezzetto, M; Mijakowski, P; Miller, CA; Minamino, A; Mineev, O; Missert, A; Miura, M; Moriyama, S; Mueller, TA; Murakami, A; Murdoch, M; Murphy, S; Myslik, J; Nakadaira, T; Nakahata, M; Nakamura, KG; Nakamura, K; Nakayama, S; Nakaya, T; Nakayoshi, K; Nantais, C; Nielsen, C; Nirkko, M; Nishikawa, K; Nishimura, Y; Nowak, J; O'Keefe, HM; Ohta, R; Okumura, K; Okusawa, T; Oryszczak, W; Oser, SM; Ovsyannikova, T; Owen, RA; Oyama, Y; Palladino, V; Palomino, JL; Paolone, V; Payne, D; Perevozchikov, O; Perkin, JD; Petrov, Y; Pickard, L; Guerra, ESP; Pistillo, C; Plonski, P; Poplawska, E; Popov, B; Posiadala-Zezula, M; Poutissou, JM; Poutissou, R; Przewlocki, P; Quilain, B; Radicioni, E; Ratoff, PN; Ravonel, M; Rayner, MAM; Redij, A; Reeves, M; Reinherz-Aronis, E; Riccio, C; Rodrigues, PA; Rojas, P; Rondio, E; Roth, S; Rubbia, A; Ruterbories, D; Rychter, A; Sacco, R; Sakashita, K; Sanchez, F; Sato, F; Scantamburlo, E; Scholberg, K; Schoppmann, S; Schwehr, J; Scott, M; Seiya, Y; Sekiguchi, T; Sekiya, H; Sgalaberna, D; Shah, R; Shaker, F; Shaw, D; Shiozawa, M; Short, S; Shustrov, Y; Sinclair, P; Smith, B; Smy, M; Sobczyk, JT; Sobel, H; Sorel, M; Southwell, L; Stamoulis, P; Steinmann, J; Still, B; Suda, Y; Suzuki, A; Suzuki, K; Suzuki, Y; Tacik, R; Tada, M; Takahashi, S; Takeda, A; Takeuchi, Y; Tanaka, HK; Tanaka, HA; Tanaka, MM; Terhorst, D; Terri, R; Thompson, LF; Thorley, A; Tobayama, S; Toki, W; Tomura, T; Totsuka, Y; Touramanis, C; Tsukamoto, T; Tzanov, M; Uchida, Y; Vacheret, A; Vagins, M; Vasseur, G; Wachala, T; Wakamatsu, K; Walter, CW; Wark, D; Warzycha, W; Wascko, MO; Weber, A; Wendell, R; Wilkes, RJ; Wilking, MJ; Wilkinson, C; Williamson, Z; Wilson, JR; Wilson, RJ; Wongjirad, T; Yamada, Y; Yamamoto, K; Yanagisawa, C; Yano, T; Yen, S; Yershov, N; Yokoyama, M; Yoo, J; Yoshida, K; Yuan, T; Yu, M; Zalewska, A; Zalipska, J; Zambelli, L; Zarembo,

- K; Ziembicki, M; Zimmerman, ED; Zito, M; Zmuda, J
PHYSICAL REVIEW D 93 (2016) 12006
71. Evidence of Halo Assembly Bias in Massive Clusters
Miyatake, H; More, S; Takada, M; Spergel, DN; Mandelbaum, R;
Rykoff, ES; Rozo, E
PHYSICAL REVIEW LETTERS 116 (2016) 41301
72. Analytical model for non-thermal pressure in galaxy clusters
- III. Removing the hydrostatic mass bias
Shi, X; Komatsu, E; Nagai, D; Lau, ET
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY
455 (2016) pp.2936-2944
73. Penrose's singularity theorem in a Finsler spacetime
Aazami, AB; Javaloyes, MA
CLASSICAL AND QUANTUM GRAVITY 33 (2016) 25003
74. Starobinsky-like two-field inflation
Kaneda, S; Ketov, SV
EUROPEAN PHYSICAL JOURNAL C 76 (2016) 26
75. THE CHANDRA COSMOS LEGACY SURVEY: OPTICAL/IR
IDENTIFICATIONS
Marchesi, S; Civano, F; Elvis, M; Salvato, M; Brusa, M; Comastri,
A; Gilli, R; Hasinger, G; Lanzuisi, G; Miyaji, T; Treister, E; Urry, CM;
Vignali, C; Zamorani, G; Alleavato, V; Cappelluti, N; Cardamone,
C; Finoguenov, A; Griffiths, RE; Karim, A; Laigle, C; LaMassa,
SM; Jahnke, K; Ranalli, P; Schawinski, K; Schinnerer, E;
Silverman, JD; Smolcic, V; Suh, H; Trakhtenbrot, B
ASTROPHYSICAL JOURNAL 817 (2016) 34
76. FRONTIER FIELDS: SUBARU WEAK-LENSING ANALYSIS OF THE
MERGING GALAXY CLUSTER A2744
Medezinski, E; Umetsu, K; Okabe, N; Nonino, M; Molnar, S;
Massey, R; Dupke, R; Merten, J
ASTROPHYSICAL JOURNAL 817 (2016) 24
77. REFSDAL MEETS POPPER: COMPARING PREDICTIONS OF THE
RE-APPEARANCE OF THE MULTIPLY IMAGED SUPERNOVA
BEHIND MACSJ1149.5+2223
Treu, T; Brammer, G; Diego, JM; Grillo, C; Kelly, PL; Oguri, M;
Rodney, SA; Rosati, P; Sharon, K; Zitrin, A; Balestra, I; Bradac, M;
Broadhurst, T; Caminha, GB; Halkola, A; Hoag, A; Ishigaki, M;
Johnson, TL; Karman, W; Kawamata, R; Mercurio, A; Schmidt,
KB; Strolger, LG; Suyu, SH; Filippenko, AV; Foley, RJ; Jha, SW;
Patel, B
ASTROPHYSICAL JOURNAL 817 (2016) 60
78. THE UNUSUAL SUPER-LUMINOUS SUPERNOVAE SN 2011KL
AND ASASSN-15LH
Bersten, MC; Benvenuto, OG; Orellana, M; Nomoto, K
ASTROPHYSICAL JOURNAL LETTERS 817 (2016) L8
79. First measurement of radioactive isotope production through
cosmic-ray muon spallation in Super-Kamiokande IV
Zhang, Y; Abe, K; Haga, Y; Hayato, Y; Ikeda, M; Iyogi, K; Kameda,
J; Kishimoto, Y; Miura, M; Moriyama, S; Nakahata, M; Nakajima,
T; Nakano, Y; Nakayama, S; Orii, A; Sekiya, H; Shiozawa, M;
Takeda, A; Tanaka, H; Tomura, T; Wendell, RA; Irvine, T; Kajita, T;
Kametani, I; Kaneyuki, K; Nishimura, Y; Richard, E; Okumura, K;
Labarga, L; Fernandez, P; Gustafson, J; Kachulis, C; Kearns, E;
Raaf, JL; Stone, JL; Sulak, LR; Berkman, S; Nantais, CM; Tanaka,
HA; Tobayama, S; Goldhaber, M; Carminati, G; Grisevich, NJ;
Kropp, WR; Mine, S; Renshaw, A; Smy, MB; Sobel, HW;
Takhistov, V; Weatherly, P; Ganezer, KS; Hartfiel, BL; Hill, J;
Hong, N; Kim, JY; Lim, IT; Himmel, A; Li, Z; Scholberg, K; Walter,
CW; Wongjirad, T; Ishizuka, T; Tasaka, S; Jang, JS; Learned, JG;
Matsuno, S; Smith, SN; Friend, M; Hasegawa, T; Ishida, T; Ishii, T;
Kobayashi, T; Nakadaira, T; Nakamura, K; Oyama, Y; Sakashita,
K; Sekiguchi, T; Tsukamoto, T; Suzuki, AT; Takeuchi, Y; Yano, T;
Hirota, S; Huang, K; Ieki, K; Kikawa, T; Minamino, A; Nakaya, T;
Suzuki, K; Takahashi, S; Fukuda, Y; Choi, K; Itow, Y; Suzuki, T;
Mijakowski, P; Frankiewicz, K; Hignight, J; Imber, J; Jung, CK; Li,
X; Palomino, JL; Wilking, MJ; Yanagisawa, C; Ishino, H; Kayano,
T; Kibayashi, A; Koshio, Y; Mori, T; Sakuda, M; Kuno, Y; Tacik, R;
Kim, SB; Okazawa, H; Choi, Y; Nishijima, K; Koshihara, M; Suda, Y;
Totsuka, Y; Yokoyama, M; Bronner, C; Hartz, M; Martens, K;
Marti, L; Suzuki, Y; Vagins, MR; Martin, JF; de Perio, P; Konaka,
A; Chen, S; Wilkes, RJ
PHYSICAL REVIEW D 93 (2016) 12004
80. Antisymmetric galaxy cross-correlations as a cosmological
probe
Dai, L; Kamionkowski, M; Kovetz, ED; Raccanelli, A; Shiraishi, M
PHYSICAL REVIEW D 93 (2016) 23507
81. Y SPACE WARPS - I. Crowdsourcing the discovery of
gravitational lenses
Marshall, PJ; Verma, A; More, A; Davis, CP; More, S; Kapadia, A;
Parrish, M; Snyder, C; Wilcox, J; Baeten, E; Macmillan, C;
Cornen, C; Baumer, M; Simpson, E; Lintott, CJ; Miller, D; Paget,
E; Simpson, R; Smith, AM; Kung, R; Saha, P; Collett, TE
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY
455 (2016) pp.1171-1190
82. SPACE WARPS-II. New gravitational lens candidates from the
CFHTLS discovered through citizen science
More, A; Verma, A; Marshall, PJ; More, S; Baeten, E; Wilcox, J;
Macmillan, C; Cornen, C; Kapadia, A; Parrish, M; Snyder, C;
Davis, CP; Gavazzi, R; Lintott, CJ; Simpson, R; Miller, D; Smith,
AM; Paget, E; Saha, P; Kung, R; Collett, TE
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY
455 (2016) pp.1191-1210
83. SDSS-III Baryon Oscillation Spectroscopic Survey Data Release
12: galaxy target selection and large-scale structure
catalogues
Reid, B; Ho, S; Padmanabhan, N; Percival, WJ; Tinker, J; Tojeiro,
R; White, M; Eisenstein, DJ; Maraston, C; Ross, AJ; Sanchez, AG;
Schlegel, D; Sheldon, E; Strauss, MA; Thomas, D; Wake, D;
Beutler, F; Bizyaev, D; Bolton, AS; Brownstein, JR; Chuang, CH;
Dawson, K; Harding, P; Kitaura, FS; Leauthaud, A; Masters, K;
McBride, CK; More, S; Olmstead, MD; Oravetz, D; Nuza, SE; Pan,
K; Parejko, J; Pforr, J; Prada, F; Rodriguez-Torres, S; Salazar-
Albornoz, S; Samushia, L; Schneider, DP; Scoccola, CG;
Simmons, A; Vargas-Magana, M
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY
455 (2016) pp.1553-1573
84. Poincaré series for non-Riemannian locally symmetric spaces
Kassel, F; Kobayashi, T
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85. SLOW QUENCHING OF STAR FORMATION IN OMEGAWINGS
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Paccagnella, A; Vulcani, B; Poggianti, BM; Moretti, A; Fritz, J;
Gullieuszik, M; Couch, W; Bettoni, D; Cava, A; D'Onofrio, M;
Fasano, G
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86. SODIUM ABSORPTION SYSTEMS TOWARD SN Ia 2014J
ORIGINATE ON INTERSTELLAR SCALES
Maeda, K; Tajitsu, A; Kawabata, KS; Foley, RJ; Honda, S;
Moritani, Y; Tanaka, M; Hashimoto, O; Ishigaki, M; Simon, JD;
Phillips, MM; Yamanaka, M; Nogami, D; Arai, A; Aoki, W;
Nomoto, K; Milisavljevic, D; Mazzali, PA; Soderberg, AM;
Schramm, M; Sato, B; Hatakawa, H; Morrell, N; Arimoto, N
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87. MERGERS AND STAR FORMATION: THE ENVIRONMENT AND
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Vulcani, B; Marchesini, D; De Lucia, G; Muzzin, A; Stefanon, M;
Brammer, GB; Labbe, I; Le Fevre, O; Milvang-Jensen, B
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88. Single-superfield helical-phase inflation
Ketov, SV; Terada, T
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De Felice, A; Mukohyama, S
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vacuum
Endo, M; Moroi, T; Nojiri, MM; Shoji, Y
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91. OPTIMASS: a package for the minimization of kinematic mass
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Cho, WS; Gainer, JS; Kim, D; Lim, SH; Matchev, KT; Moortgat, F;
Pape, L; Park, M
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92. ATLAS on-Z excess via gluino-Higgsino-singlino decay chains in
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Henning, B; Lu, XC; Murayama, H
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Mazumdar, A; Saikawa, K; Yamaguchi, M; Yokoyama, J
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Toda, Y
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97. Gepner Type Stability Condition via Orlov/Kuznetsov
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Bacher, S; Bahinipati, S; Barberio, E; Baronecchi, T; Baronecchi, T;
Basith, AK; Batignani, G; Bauer, A; Behera, PK; Bergauer, T;
Bettarini, S; Bhuyan, B; Bilka, T; Bosi, F; Bosisio, L; Bozek, A;
Buchsteiner, F; Casarosa, G; Ceccanti, M; Cervenkova, D;
Chendvankar, SR; Dash, N; Divekar, ST; Dolezal, Z; Dutta, D;
Forti, F; Friedl, M; Fruhwirth, R; Hara, K; Higuchi, T; Horiguchi, T;
Ishikawa, A; Jeon, HB; Joo, C; Kandra, J; Kang, KH; Kato, E;
Kawasaki, T; Kodys, P; Kohriki, T; Koike, S; Kolwalkar, MM;
Kvasnicka, P; Lancieri, L; Lettenbicher, J; Maki, M; Mammimi, P;
Mayekar, SN; Mohanty, GB; Mohanty, S; Morii, T; Nakamura, KR;
Natkaniec, Z; Negishi, K; Nisar, NK; Onuki, Y; Ostrowicz, W;
Paladino, A; Paoloni, E; Park, H; Pilo, F; Profeti, A; Rao, KK;
Rashevskaya, I; Rizzo, G; Rozanska, M; Sandilya, S; Sasaki, J;
Sato, N; Schultschik, S; Schwanda, C; Seino, Y; Shimizu, N;
Stypula, J; Suzuki, J; Tanaka, S; Tanida, K; Taylor, GN; Thalmeier,
R; Thomas, R; Tsuboyama, T; Uozumi, S; Urquijo, P; Vitale, L;
Volpi, M; Watanuki, S; Watson, IJ; Webb, J; Wiechczynski, J;
Williams, S; Wurfner, B; Yamamoto, H; Yin, H; Yoshinobu, T
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101. EMC studies for the vertex detector of the Belle II experiment
Thalmeier, R; Iglesias, M; Arteché, F; Echeverria, I; Friedl, M;
Adamczyk, K; Aihara, H; Angelini, C; Aziz, T; Babu, V; Bacher, S;
Bahinipati, S; Barberio, E; Baronecchi, T; Basith, AK; Batignani, G;
Bauer, A; Behera, PK; Bergauer, T; Bettarini, S; Bhuyan, B; Bilka,
T; Bosi, F; Bosisio, L; Bozek, A; Buchsteiner, F; Casarosa, G;
Ceccanti, M; Cervenkova, D; Chendvankar, SR; Dash, N; Divekar,
ST; Dolezal, Z; Dutta, D; Forti, F; Hara, K; Higuchi, T; Horiguchi,
T; Irmmler, C; Ishikawa, A; Jeon, HB; Joo, C; Kandra, J; Kang, KH;
Kato, E; Kawasaki, T; Kiesling, C; Kodys, P; Kohriki, T; Koike, S;
Kolwalkar, MM; Kvasnicka, P; Lancieri, L; Lettenbicher, J; Maki,
M; Mammimi, P; Mayekar, SN; Mohanty, GB; Mohanty, S; Morii,
T; Moser, HG; Nakamura, KR; Natkaniec, Z; Negishi, K; Nisar, NK;
Onuki, Y; Ostrowicz, W; Paladino, A; Paoloni, E; Park, H; Pilo, F;
Profeti, A; Rao, KK; Rashevskaya, I; Rizzo, G; Rozanska, M;
Rummel, S; Sandilya, S; Sasaki, J; Sato, N; Schultschik, S;
Schwanda, C; Seino, Y; Shimizu, N; Stypula, J; Suzuki, J; Tanaka,
S; Tanida, K; Taylor, GN; Thomas, R; Tsuboyama, T; Uozumi, S;
Urquijo, P; Vitale, L; Volpi, M; Watanuki, S; Watson, IJ; Webb, J;
Wiechczynski, J; Williams, S; Wurfner, B; Yamamoto, H; Yin, H;
Yoshinobu, T
JOURNAL OF INSTRUMENTATION 11 (2016) C01044
102. The chemical evolution of self-gravitating primordial disks
Schleicher, DRG; Bovino, S; Latif, MA; Ferrara, A; Grassi, T
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103. Double-trace deformations and entanglement entropy in AdS
Miyagawa, T; Shiba, N; Takayanagi, T
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Aartsen, MG; Abraham, K; Ackermann, M; Adams, J; Aguilar,
JA; Ahlers, M; Ahrens, M; Altmann, D; Anderson, T; Anseau, I;
Archinger, M; Argüelles, C; Arlen, TC; Enberg, F; Bai, X; Barwick,
SW; Baum, V; Bay, R; Beatty, JJ; Tjus, JB; Becker, KH; Beiser, E;
Berghaus, P; Berley, D; Bernardini, E; Bernhard, A; Besson, DZ;
Binder, G; Bindig, D; Bissok, M; Blaufuss, E; Blumenthal, J;
Boersma, DJ; Bohm, C; Borner, M; Bos, F; Bose, D; Boser, S;
Botner, O; Braun, J; Brayeur, L; Bretz, HP; Buzinsky, N; Casey, J;
Casier, M; Cheung, E; Chirkin, D; Christov, A; Clark, K; Classen, L;
Coenders, S; Cowen, DF; Silva, AHC; Daughhetee, J; Davis, JC;
Day, M; de Andre, JPAM; De Clercq, C; Rosendo, ED;
Dembinski, H; De Ridder, S; Desati, P; de Vries, KD; de
Wasseige, G; De With, M; DeYoung, T; Diaz-Velez, JC; di
Lorenzo, V; Dumm, JP; Dunkman, M; Eberhardt, B; Ehrhardt, T;
Eichmann, B; Euler, S; Evenson, PA; Fahey, S; Fazely, AR;
Feintzeig, J; Felde, J; Filimonov, K; Finley, C; Fischer-Wasels, T;
Flis, S; Fosig, CC; Fuchs, T; Gaisser, TK; Gaior, R; Gallagher, J;
Gerhardt, L; Ghorbani, K; Gier, D; Gladstone, L; Glagla, M;
Glusenkamp, T; Goldschmidt, A; Golup, G; Gonzalez, JG; Gora,
D; Grant, D; Griffith, Z; Gross, A; Ha, C; Haack, C; Ismail, AH;
Hallgren, A; Halzen, E; Hansen, E; Hansmann, B; Hanson, K;
Hebecker, D; Heereman, D; Helbing, K; Hellauer, R; Hickford, S;
Hignight, J; Hill, GC; Hoffman, KD; Hoffmann, R; Holzappel, K;
Homeier, A; Hoshina, K; Huang, F; Huber, M; Huelsnitz, W;
Hulth, PO; Hultqvist, K; In, S; Ishihara, A; Jacobi, E; Japaridze,
GS; Jeong, M; Jero, K; Jurkovic, M; Kappes, A; Karg, T; Karle, A;
Kauer, M; Keivani, A; Kelley, JL; Kemp, J; Kheirandish, A; Kiryluk,
J; Klas, J; Klein, SR; Kohner, G; Koirala, R; Kolanoski, H; Konietz,
R; Kopke, L; Kopper, C; Kopper, S; Koskinen, DJ; Kowalski, M;
Krings, K; Kroll, G; Kroll, M; Kruckl, G; Kunnen, J; Kurahashi, N;
Kuwabara, T; Labare, M; Lanfranchi, JL; Larson, MJ; Lesiak-
Bzdak, M; Leuermann, M; Leuner, J; Lu, L; Lunemann, J;
Madsen, J; Maggi, G; Mahn, KBM; Mandelartz, M; Maruyama,
R; Mase, K; Matis, HS; Maunu, R; McNally, F; Meagher, K; Medici,
M; Meli, A; Menne, T; Merino, G; Meures, T; Miarecki, S; Middell,
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- F; Di Luise, S; Dolan, S; Drapier, O; Duboyski, T; Duffy, K; Dumarchez, J; Dytman, S; Dziewiecki, M; Di Luise, S; Dolan, S; Drapier, O; Duboyski, T; Duffy, K; Dumarchez, J; Dytman, S; Dziewiecki, M; Emery-Schrenk, S; Ereditato, A; Escudero, L; Feusels, T; Finch, AJ; Fiorentini, GA; Friend, M; Fujii, Y; Fukuda, Y; Furmanski, AP; Galymov, V; Garcia, A; Giffin, S; Giganti, C; Gilje, K; Goeldi, D; Golan, T; Gonin, M; Grant, N; Guidin, D; Hadley, DR; Haegel, L; Haesler, A; Haigh, MD; Hamilton, P; Hansen, D; Hara, T; Hartz, M; Hasegawa, T; Hastings, NC; Hayashino, T; Hayato, Y; Hearty, C; Helmer, RL; Hierholzer, M; Hignight, J; Hillairet, A; Himmel, A; Hiraki, T; Hirota, S; Holeczek, J; Horikawa, S; Huang, K; Hosomi, F; Huang, K; Ichikawa, AK; Ieki, K; Ieva, M; Ikeda, M; Imber, J; Insler, J; Intonti, RA; Irvine, TJ; Ishida, T; Ishii, T; Iwai, E; Iwamoto, K; Iyogi, K; Izmaylov, A; Jacob, A; Jamieson, B; Jiang, M; Johnson, S; Jo, JH; Jonsson, P; Jung, CK; Kabirmezahad, M; Kaboth, AC; Kajita, T; Kakuno, H; Kameda, J; Kanazawa, Y; Karlen, D; Karpikov, I; Katori, T; Kearns, E; Khabibullin, M; Khotjantsev, A; Kielczewska, D; Kikawa, T; Kilinski, A; Kim, J; King, S; Kisiel, J; Kitching, P; Kobayashi, T; Koch, L; Kolaceke, A; Koga, T; Konaka, A; Kopylov, A; Kormos, LL; Korzenev, A; Koshio, Y; Kropp, W; Kubo, H; Kudenko, Y; Kurjata, R; Kutter, T; Lagoda, J; Lamont, I; Larkin, E; Laveder, M; Lawe, M; Lazos, M; Lindner, T; Lister, C; Litchfield, RP; Longhin, A; Lopez, JP; Ludovici, L; Magaletti, L; Mahn, K; Malek, M; Manly, S; Marino, AD; Marteau, J; Martin, JF; Martins, P; Martynenko, S; Maruyama, T; Matveev, V; Mavrokoridis, K; Ma, WY; Mazzucato, E; McCarthy, M; McCauley, N; McFarland, KS; McGrew, C; Mefodiev, A; Metelko, C; Mezzetto, M; Mijakowski, P; Miller, CA; Minamino, A; Mineev, O; Mine, S; Missert, A; Miura, M; Moriyama, S; Mueller, TA; Murakami, A; Murdoch, M; Murphy, S; Myslik, J; Nakadaira, T; Nakahata, M; Nakamura, KG; Nakamura, K; Nakamura, KD; Nakayama, S; Nakaya, T; Nakayoshi, K; Nantais, C; Nielsen, C; Nirliko, M; Nishikawa, K; Nishimura, Y; Nowak, J; O'Keefe, HM; Ohta, R; Okumura, K; Okusawa, T; Oryszczak, W; Oser, SM; Ovsyannikova, T; Owen, RA; Oyama, Y; Palladino, V; Palomino, JL; Paolone, V; Payne, D; Perevozchikov, O; Perkin, JD; Petrov, Y; Pickard, L; Pickering, L; Guerra, ESP; Pistillo, C; Plonski, P; Poplawska, E; Popov, B; Posiadala-Zezula, M; Poutissou, JM; Poutissou, R; Przewlocki, P; Quilain, B; Radicioni, E; Ratoff, PN; Ravonel, M; Rayner, MAM; Redij, A; Reeves, M; Reinherz-Aronis, E; Riccio, C; Rodrigues, PA; Rojas, P; Rondio, E; Roth, S; Rubbia, A; Ruterbories, D; Rychter, A; Sacco, R; Sakashita, K; Sanchez, F; Sato, F; Scantamburlo, E; Scholberg, K; Schoppmann, S; Schwehr, JD; Scott, M; Seiya, Y; Sekiguchi, T; Sekiya, H; Sgalaberna, D; Shah, R; Shaikhiev, A; Shaker, F; Shaw, D; Shiozawa, M; Shirahige, T; Short, S; Shustrov, Y; Sinclair, P; Smith, B; Smy, M; Sobczyk, JT; Sobel, H; Sorel, M; Southwell, L; Stamoulis, P; Steinmann, J; Still, B; Stewart, T; Suda, Y; Suzuki, A; Suzuki, K; Suzuki, SY; Suzuki, Y; Tacik, R; Tada, M; Takahashi, S; Takeda, A; Takeuchi, Y; Tanaka, HK; Tanaka, HA; Tanaka, MM; Terhorst, D; Terri, R; Thompson, LF; Thorley, A; Tobayama, S; Toki, W; Tomura, T; Touramanis, C; Tsukamoto, T; Tzanov, M; Uchida, Y; Vacheret, A; Vagins, M; Vallari, Z; Vasseur, G; Wachala, T; Wakamatsu, K; Walter, CW; Wark, D; Warzycha, W; Wascko, MO; Weber, A; Wendell, R; Wilkes, RJ; Wilking, MJ; Wilkinson, C; Williamson, Z; Wilson, JR; Wilson, RJ; Wongjirad, T; Yamada, Y; Yamamoto, K; Yanagisawa, C; Yano, T; Yen, S; Yershov, N; Yokoyama, M; Yoo, J; Yoshida, K; Yuan, T; Yu, M; Zalewska, A; Zalipska, J; Zambelli, L; Zarembo, K; Ziembicki, M; Zimmerman, ED; Zito, M; Zmuda, J
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134. POLARBEAR constraints on cosmic birefringence and primordial magnetic fields
Ade, PAR; Arnold, K; Atlas, M; Baccigalupi, C; Barron, D; Boettger, D; Borrill, J; Chapman, S; Chinone, Y; Cukierman, A; Dobbs, M; Ducout, A; Dunner, R; Elleflot, T; Errard, J; Fabbian, G; Feeney, S; Feng, C; Gilbert, A; Goeckner-Wald, N; Groh, J; Hall, G; Halverson, NW; Hasegawa, M; Hattori, K; Hazumi, M; Hill, C; Holzapfel, WL; Hori, Y; Howe, L; Inoue, Y; Jaehnig, GC; Jaffe, AH; Jeong, O; Katayama, N; Kaufman, JP; Keating, B; Kermish, Z; Keskitalo, R; Kisner, T; Kusaka, A; Le Jeune, M; Lee, AT; Leitch, EM; Leon, D; Li, Y; Linder, E; Lowry, L; Matsuda, F; Matsumura, T; Miller, N; Montgomery, J; Myers, MJ; Navaroli, M; Nishino, H; Okamura, T; Paar, H; Peloton, J; Pogosian, L; Poletti, D; Puglisi, G; Raum, C; Rebeiz, G; Reichardt, CL; Richards, PL; Ross, C; Rotermund, KM; Schenck, DE; Sherwin, BD; Shimon, M; Shirley, I; Siritanasak, P; Smecher, G; Stebor, N; Steinbach, B; Suzuki, A; Suzuki, J; Tajima, O; Takakura, S; Tikhomirov, A; Tomaru, T; Whitehorn, N; Wilson, B; Yadav, A; Zahn, A; Zahn, O
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Agnello, A; Treu, T; Ostrovski, F; Schechter, PL; Buckley-Geer, EJ; Lin, H; Auger, MW; Courbin, F; Fassnacht, CD; Frieman, J; Kuropatkin, N; Marshall, PJ; McMahon, RG; Meylan, G; More, A; Suyu, SH; Rusu, CE; Finley, D; Abbott, T; Abdalla, FB; Allam, S; Annis, J; Banerji, M; Benoit-Levy, A; Bertin, E; Brooks, D; Burke, DL; Rosell, AC; Kind, MC; Carretero, J; Cunha, CE; D'Andrea, CB; da Costa, LN; Desai, S; Diehl, HT; Dietrich, JP; Doel, P; Eifler, TF; Estrada, J; Neto, AF; Flaugher, B; Fosalba, P; Gerdes, DW; Gruen, D; Gutierrez, G; Honscheid, K; James, DJ; Kuehn, K; Lahav, O; Lima, M; Maia, MAG; March, M; Marshall, JL; Martini, P; Melchior, P; Miller, CJ; Miquel, R; Nichol, RC; Ogando, R; Plazas, AA; Reil, K; Romer, AK; Roodman, A; Sako, M; Sanchez, E; Santiago, B; Scarpine, V; Schubnell, M; Sevilla-Noarbe, I; Smith, RC; Soares-Santos, M; Sobreira, F; Suchyta, E; Swanson, MEC; Tarle, G; Thaler, J; Tucker, D; Walker, AR; Wechsler, RH; Zhang, Y
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 454 (2015) pp.1260-1265
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Taniguchi, Y; Kajisawa, M; Kobayashi, MAR; Shioya, Y; Nagao, T; Capak, PL; Aussel, H; Ichikawa, A; Murayama, T; Scoville, NZ; Ilbert, O; Salvato, M; Sanders, DBB; Mobasher, B; Miyazaki, S; Komiyama, Y; Le Fevre, O; Tasca, L; Lilly, S; Carollo, M; Renzini, A; Rich, M; Schinnerer, E; Kaifu, N; Karoji, H; Arimoto, N; Okamura, S; Ohta, K; Shimasaku, K; Hayashino, T
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150. Cosmological Relaxation of the Electroweak Scale
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151. SN 2011fu: a type IIb supernova with a luminous double-peaked light curve
Morales-Garoffolo, A; Elias-Rosa, N; Bersten, M; Jerkstrand, A; Taubenberger, S; Benetti, S; Cappellaro, E; Kotak, R; Pastorello, A; Bufano, F; Dominguez, RM; Ergon, M; Fraser, M; Gao, X; Garcia, E; Howell, DA; Isern, J; Smartt, SJ; Tomasella, L; Valenti, S
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153. EARLY STRUCTURE FORMATION FROM PRIMORDIAL DENSITY FLUCTUATIONS WITH A BLUE, TILTED POWER SPECTRUM
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Katsuda, S; Acero, F; Tominaga, N; Fukui, Y; Hiraga, JS; Koyama, K; Lee, SH; Mori, K; Nagataki, S; Ohira, Y; Petre, R; Sano, H; Takeuchi, Y; Tamagawa, T; Tsujii, N; Tsunemi, H; Uchiyama, Y
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Kobayashi, T; Orsted, B; Somberg, P; Soucek, V
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Bundy, K; Leauthaud, A; Saito, S; Bolton, A; Lin, YT; Maraston, C; Nichol, RC; Schneider, DP; Thomas, D; Wake, DA
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178. Probing cosmology with weak lensing selected clusters - I. Halo approach and all-sky simulations
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Akiyama, M; Ueda, Y; Watson, MG; Furusawa, H; Takata, T; Simpson, C; Morokuma, T; Yamada, T; Ohta, K; Iwamura, F; Yabe, K; Tamura, N; Moritani, Y; Takato, N; Kimura, M; Maihara, T; Dalton, G; Lewis, I; Lee, H; Curtis-Lake, E; Macaulay, E; Clarke, F; Silverman, JD; Croom, S; Ouchi, M; Hanami, H; Tello, JD; Yoshikawa, T; Fujishiro, N; Sekiguchi, K
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211. S-Duality for surfaces with A_n -type singularities
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212. Constraining the amount of circumstellar matter and dust around Type Ia supernovae through near-infrared echoes
Maeda, K; Nozawa, T; Nagao, T; Motohara, K
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213. Exploring the diffuse interstellar bands with the Sloan Digital Sky Survey
Lan, TW; Menard, B; Zhu, GT
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 452 (2015) pp.3629-3649
214. 500 days of SN 2013dy: spectra and photometry from the ultraviolet to the infrared
Pan, YC; Foley, RJ; Kromer, M; Fox, OD; Zheng, W; Challis, P; Clubb, KI; Filippenko, AV; Folatelli, G; Graham, ML; Hillebrandt, W; Kirshner, RP; Lee, WH; Pakmor, R; Patat, F; Phillips, MM; Pignata, G; Ropke, F; Seitenzahl, I; Silverman, JM; Simon, JD; Sternberg, A; Stritzinger, MD; Taubenberger, S; Vinko, J; Wheeler, JC
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 452 (2015) pp.4307-4325
215. Global uniqueness of small representations
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MATHEMATISCHE ZEITSCHRIFT 281 (2015) pp.215-239
216. A uniqueness theorem for gluing calibrated submanifolds
Imagi, Y
COMMUNICATIONS IN ANALYSIS AND GEOMETRY 23 (2015) pp.691-715
217. Seminal gauge mediation from product group unification
Fukuda, H; Murayama, H; Yanagida, TT; Yokozaki, N
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218. Mass-splitting between haves and have-nots - symmetry vs. Grand Unified Theory
Harigaya, K; Ibe, M; Suzuki, M
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219. Search for the proton decay mode $p \rightarrow \bar{\nu} K^+$ with KamLAND
Asakura, K; Gando, A; Gando, Y; Hachiya, T; Hayashida, S; Ikeda, H; Inoue, K; Ishidoshiro, K; Ishikawa, T; Ishio, S; Koga, M; Matsuda, R; Matsuda, S; Mitsui, T; Motoki, D; Nakamura, K; Obara, S; Oki, Y; Oura, T; Shimizu, I; Shirahata, Y; Shirai, J; Suzuki, A; Tachibana, H; Tamae, K; Ueshima, K; Watanabe, H; Xu, BD; Yamauchi, Y; Yoshida, H; Kozlov, A; Takemoto, Y; Yoshida, S; Fushimi, K; Grant, C; Piepke, A; Banks, TI; Berger, BE; Freedman, SJ; Fujikawa, BK; O'Donnell, T; Learned, JG; Maricic, J; Sakai, M; Dazeley, S; Svoboda, R; Winslow, LA; Efremenko, Y; Karwowski, HJ; Markoff, DM; Tornow, W; Detwiler, JA; Enomoto, S; Decowski, MP
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220. Standard Model Effective Field Theory: integrating out a generic scalar
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Bao, N; Nezami, S; Ooguri, H; Stoica, B; Sully, J; Walter, M
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Tadaki, K; Kohno, K; Kodama, T; Ikarashi, S; Aretxaga, I; Berta, S; Caputi, KI; Dunlop, JS; Hatsukade, B; Hayashi, M; Hughes, DH; Ivison, R; Izumi, T; Koyama, YS; Lutz, D; Makiya, R; Matsuda, YC; Nakanishi, K; Rujopakarn, W; Tamura, YC; Umehata, H; Wang, WH; Wilson, GW; Wuys, S; Yamaguchi, Y; Yun, MS
Astrophysical Journal Letters 811 (2015) L3
223. SHOCK WAVE STRUCTURE IN ASTROPHYSICAL FLOWS WITH AN ACCOUNT OF PHOTON TRANSFER
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224. THE GRISM LENS-AMPLIFIED SURVEY FROM SPACE (GLASS). IV. MASS RECONSTRUCTION OF THE LENSING CLUSTER ABELL 2744 FROM FRONTIER FIELD IMAGING AND GLASS SPECTROSCOPY
Wang, X; Hoag, A; Huang, KH; Treu, T; Bradac, M; Schmidt, KB; Brammer, GB; Vulcani, B; Jones, TA; Ryan, RE; Amorin, R; Castellano, M; Fontana, A; Merlin, E; Trenti, M
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PHYSICAL REVIEW LETTERS 115 (2015) 121803
227. Indirect probe of electroweak-interacting particles at future lepton colliders
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228. FLOPS AND THE S-DUALITY CONJECTURE
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229. Photon emission in neutral current interactions at the T2K experiment
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230. The growth efficiency of high-redshift black holes
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231. OPTICAL-INFRARED PROPERTIES OF FAINT 1.3mm SOURCES DETECTED WITH ALMA
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Silverman, JD; Kashino, D; Sanders, D; Kartaltepe, JS; Arimoto, N; Renzini, A; Rodighiero, G; Daddi, E; Zahid, J; Nagao, T; Kewley, LJ; Lilly, SJ; Sugiyama, N; Baronchelli, I; Capak, P; Carollo, CM; Chu, J; Hasinger, G; Ilbert, O; Juneau, S; Kajisawa, M; Koekemoer, AM; Kovac, K; Le Fevre, O; Masters, D; McCracken, HJ; Onodera, M; Schulze, A; Scoville, N; Strazzullo, V; Taniguchi, Y
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Geach, JE; More, A; Verma, A; Marshall, PJ; Jackson, N; Belles, PE; Beswick, R; Baeten, E; Chavez, M; Cornen, C; Cox, BE; Erben, T; Erickson, NJ; Garrington, S; Harrison, PA; Harrington, K; Hughes, DH; Ivison, RJ; Jordan, C; Lin, YT; Leauthaud, A; Lintott, C; Lynn, S; Kapadia, A; Kneib, JP; Macmillan, C; Makler, M; Miller, G; Montana, A; Mujica, R; Muxlow, T; Narayanan, G; Briain, DO; O'Brien, T; Oguri, M; Paget, E; Parrish, M; Ross, P; Rozo, E; Rusu, CE; Rykoff, ES; Sanchez-Argüelles, D; Simpson, R; Snyder, C; Schloerb, FP; Tecza, M; Wang, WH; Van Waerbeke, L; Wilcox, J; Viero, M; Wilson, GW; Yun, MS; Zeballos, M
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Abbasi, RU; Abe, M; Abu-Zayyad, T; Allen, M; Azuma, R; Barcikowski, E; Belz, JW; Bergman, DR; Blake, SA; Cady, R; Chae, MJ; Cheon, BG; Chiba, J; Chikawa, M; Cho, WR; Fujii, T; Fukushima, M; Goto, T; Hanlon, W; Hayashi, Y; Hayashida, N; Hibino, K; Honda, K; Ikeda, D; Inoue, N; Ishii, T; Ishimori, R; Ito, H; Ivanov, D; Jui, CCH; Kadota, K; Kakimoto, F; Kalashev, O; Kasahara, K; Kawai, H; Kawakami, S; Kawana, S; Kawata, K; Kido, E; Kim, HB; Kim, JH; Kitamura, S; Kitamura, Y; Kuzmin, V; Kwon, YJ; Lan, J; Lim, SI; Lundquist, JP; Machida, K; Martens, K; Matsuda, T; Matsuyama, T; Matthews, JN; Minamino, M; Mukai, Y; Myers, I; Nagasawa, K; Nagataki, S; Nakamura, T; Nonaka, T; Nozato, A; Ogio, S; Ogura, J; Ohnishi, M; Ohoka, H; Oki, K; Okuda, T; Ono, M; Oshima, A; Ozawa, S; Park, IH; Pshirkov, MS; Rodriguez, DC; Rubtsov, G; Ryu, D; Sagawa, H; Sakurai, N; Scott, LM; Shah, PD; Shibata, F; Shibata, T; Shimodaira, H; Shin,

- BK; Shin, HS; Smith, JD; Sokolsky, P; Springer, RW; Stokes, BT; Stratton, SR; Stroman, TA; Suzawa, T; Takamura, M; Takeda, M; Takeishi, R; Taketa, A; Takita, M; Tameda, Y; Tanaka, H; Tanaka, K; Tanaka, M; Thomas, SB; Thomson, GB; Tinyakov, P; Tkachev, I; Tokuno, H; Tomida, T; Troitsky, S; Tsunesada, Y; Tsutsumi, K; Uchihori, Y; Udo, S; Urban, F; Vasiloff, G; Wong, T; Yamane, R; Yamaoka, H; Yamazaki, K; Yang, J; Yashiro, K; Yoneda, Y; Yoshida, S; Yoshii, H; Zollinger, R; Zundel, Z
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Abbasi, RU; Abe, M; Abu-Zayyad, T; Allen, MG; Anderson, R; Azuma, R; Barcikowski, E; Belz, JW; Bergman, DR; Blake, SA; Cady, R; Chae, MJ; Cheon, BG; Chiba, J; Chikawa, M; Cho, WR; Fujii, T; Fukushima, M; Goto, T; Hanlon, W; Hayashi, Y; Hayashida, N; Hibino, K; Honda, K; Ikeda, D; Inoue, N; Ishii, T; Ishimori, R; Ito, H; Ivanov, D; Jui, CCH; Kadota, K; Kakimoto, F; Kalashev, O; Kasahara, K; Kawai, H; Kawakami, S; Kawana, S; Kawata, K; Kido, E; Kim, HB; Kim, JH; Kim, JH; Kitamura, S; Kitamura, Y; Kuzmin, V; Kwon, YJ; Lan, J; Lim, SJ; Lundquist, JP; Machida, K; Martens, K; Matsuda, T; Matsuyama, T; Matthews, JN; Minamino, M; Mukai, K; Myers, I; Nagasawa, K; Nagataki, S; Nakamura, T; Nonaka, T; Nozato, A; Ogio, S; Ogura, J; Ohnishi, M; Ohoka, H; Oki, K; Okuda, T; Ono, M; Oshima, A; Ozawa, S; Park, IH; Pshirkov, MS; Rodriguez, DC; Rubtsov, G; Ryu, D; Sagawa, H; Sakurai, N; Sampson, AL; Scott, LM; Shah, PD; Shibata, F; Shibata, T; Shimodaira, H; Shin, BK; Shin, HS; Smith, JD; Sokolsky, P; Springer, RW; Stokes, BT; Stratton, SR; Stroman, TA; Suzawa, T; Takamura, M; Takeda, M; Takeishi, R; Taketa, A; Takita, M; Tameda, Y; Tanaka, H; Tanaka, K; Tanaka, M; Thomas, SB; Thomson, GB; Tinyakov, P; Tkachev, I; Tokuno, H; Tomida, T; Troitsky, S; Tsunesada, Y; Tsutsumi, K; Uchihori, Y; Udo, S; Urban, F; Vasiloff, G; Wong, T; Yamane, R; Yamaoka, H; Yamazaki, K; Yang, J; Yashiro, K; Yoneda, Y; Yoshida, S; Yoshii, H; Zollinger, R; Zundel, Z
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280. Conformal field theory, tensor categories and operator algebras
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288. KEPLER'S SUPERNOVA: AN OVERLUMINOUS TYPE Ia EVENT INTERACTING WITH A MASSIVE CIRCUMSTELLAR MEDIUM AT A VERY LATE PHASE
Katsuda, S; Mori, K; Maeda, K; Tanaka, M; Koyama, K; Tsunemi, H; Nakajima, H; Maeda, Y; Ozaki, M; Petre, R
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299. Low-energy supersymmetry breaking without the gravitino problem
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300. Leptogenesis via neutrino production during Higgs condensate relaxation
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Ilbert, O; Arnouts, S; Le Floch, E; Aussel, H; Bethermin, M; Capak, P; Hsieh, BC; Kajisawa, M; Karim, A; Le Fevre, O; Lee, N; Lilly, S; McCracken, HJ; Michel-Dansac, L; Moutard, T; Renzini, MA; Salvato, M; Sanders, DB; Scoville, N; Sheth, K; Silverman, JD; Smolcic, V; Taniguchi, Y; Tresse, L
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317. Nebular phase observations of the Type-Ib supernova iPTF13bvn favour a binary progenitor
Kuncarayakti, H; Maeda, K; Bersten, MC; Folatelli, G; Morrell, N; Hsiao, EY; Gonzalez-Gaitan, S; Anderson, JP; Hamuy, M; de Jaeger, T; Gutierrez, CP; Kawabata, KS
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318. THE ELEVENTH AND TWELFTH DATA RELEASES OF THE SLOAN DIGITAL SKY SURVEY: FINAL DATA FROM SDSS-III
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Mazzali, PA; Sullivan, M; Filippenko, AV; Garnavich, PM; Clubb, KI; Maguire, K; Pan, YC; Shappee, B; Silverman, JM; Benetti, S; Hachinger, S; Nomoto, K; Pian, E
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336. Galaxy sizes as a function of environment at intermediate redshift from the ESO Distant Cluster Survey
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338. IMPACT OF BARYONIC PROCESSES ON WEAK-LENSING COSMOLOGY: POWER SPECTRUM, NONLOCAL STATISTICS, AND PARAMETER BIAS
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Yamanaka, M; Maeda, K; Kawabata, KS; Tanaka, M; Tominaga, N; Akitaya, H; Nagayama, T; Kuroda, D; Takahashi, J; Saito, Y; Yanagisawa, K; Fukui, A; Miyanoshiba, R; Watanabe, M; Arai, A; Isogai, M; Hattori, T; Hanayama, H; Itoh, R; Ui, T; Takaki, K; Ueno, I; Yoshida, M; Ali, GB; Essam, A; Ozaki, A; Nakao, H; Hamamoto, K; Nogami, D; Morokuma, T; Oasa, Y; Izumiura, H; Sekiguchi, K
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342. Measurement of the electron neutrino charged-current interaction rate on water with the T2K ND280 m^0 detector
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379. PLANETARY COLLISIONS OUTSIDE THE SOLAR SYSTEM: TIME DOMAIN CHARACTERIZATION OF EXTREME DEBRIS DISKS
Meng, HYA; Su, KYL; Rieke, GH; Rujopakarn, W; Myers, G; Cook, M; Erdelyi, E; Maloney, C; McMath, J; Persha, G; Poshyachinda, S; Reichart, DE
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387. Massive stars exploding in a He-rich circumstellar medium - V. Observations of the slow-evolving SN Ibn OGLE-2012-SN-006
Pastorello, A; Wyrzykowski, L; Valenti, S; Prieto, JL; Kozłowski, S; Udalski, A; Elias-Rosa, N; Morales-Garoffolo, A; Anderson, JP; Benetti, S; Bersten, M; Botticella, MT; Cappellaro, E; Fasano, G; Fraser, M; Gal-Yam, A; Gillone, M; Graham, ML; Greiner, J; Hachinger, S; Howell, DA; Ineserra, C; Parrent, J; Rau, A; Schulze, S; Smartt, SJ; Smith, KW; Turatto, M; Yaron, O; Young, DR; Kubiak, M; Szymanski, MK; Pietrzyński, G; Soszynski, I; Ulaczyk, K; Poleski, R; Pietrukowicz, P; Skowron, J; Mroz, P
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388. Can we use weak lensing to measure total mass profiles of galaxies on 20 kpc scales?
Kobayashi, MIN; Leauthaud, A; More, S; Okabe, N; Laigle, C; Rhodes, J; Takeuchi, TT
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389. Axion landscape and natural inflation
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392. A NORTHERN SKY SURVEY FOR POINT-LIKE SOURCES OF EeV NEUTRAL PARTICLES WITH THE TELESCOPE ARRAY EXPERIMENT
Abbasi, RU; Abe, M; Abu-Zayyad, T; Allen, M; Anderson, R; Azuma, R; Barcikowski, E; Belz, JW; Bergman, DR; Blake, SA; Cady, R; Chae, MJ; Cheon, BG; Chiba, J; Chikawa, M; Cho, WR; Fujii, T; Fukushima, M; Goto, T; Hanlon, W; Hayashi, Y; Hayashida, N; Hibino, K; Honda, K; Ikeda, D; Inoue, N; Ishii, T; Ishimori, R; Ito, H; Ivanov, D; Jui, CCH; Kadota, K; Kakimoto, F; Kalashev, O; Kasahara, K; Kawai, H; Kawakami, S; Kawana, S; Kawata, K; Kido, E; Kim, HB; Kim, JH; Kim, JH; Kitamura, S; Kitamura, Y; Kuzmin, V; Kwon, YJ; Lan, J; Lim, SI; Lundquist, JP; Machida, K; Martens, K; Matsuda, T; Matsuyama, T; Matthews, JN; Minamino, M; Mukai, K; Myers, I; Nagasawa, K; Nagataki, S; Nakamura, T; Nonaka, T; Nozato, A; Ogio, S; Ogura, J; Ohnishi, M; Ohoka, H; Oki, K; Okuda, T; Ono, M; Oshima, A; Ozawa, S; Park, IH; Pshirkov, MS; Rodriguez, DC; Rubtsov, G; Ryu, D; Sagawa, H; Sakurai, N; Sampson, AL; Scott, LM; Shah, PD; Shibata, F; Shibata, T; Shimodaira, H; Shin, BK; Smith, JD; Sokolsky, P; Springer, RW; Stokes, BT; Stratton, SR; Stroman, TA; Suzawa, T; Takamura, M; Takeda, M; Takeishi, R; Taketa, A; Takita, M; Tameda, Y; Tanaka, H; Tanaka, K; Tanaka, M; Thomas, SB; Thomson, GB; Tinyakov, P; Tkachev, I; Tokuno, H; Tomida, T; Troitsky, S; Tsunesada, Y; Tsutsumi, K; Uchihori, Y; Udo, S; Urban, F; Vasiloff, G; Wong, T; Yamane, R; Yamaoka, H; Yamazaki, K; Yang, J; Yashiro, K; Yoneda, Y; Yoshida, S; Yoshii, H; Zollinger, R; Zundel, Z
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394. P-MaNGA: GRADIENTS IN RECENT STAR FORMATION HISTORIES AS DIAGNOSTICS FOR GALAXY GROWTH AND DEATH
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396. Effective theories for dark matter nucleon scattering
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399. MegaMorph: classifying galaxy morphology using multi-wavelength Sersic profile fits
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400. Physics potential of a long-baseline neutrino oscillation experiment using a J-PARC neutrino beam and Hyper-Kamiokande
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- Densham, C; Detwiler, J; Dewhurst, D; Di Lodovico, F; Di Luise, S; Drapier, O; Emery, S; Ereditato, A; Fernandez, P; Feusels, T; Finch, A; Fitton, M; Friend, M; Fujii, Y; Fukuda, Y; Fukuda, D; Galymov, V; Ganezer, K; Gonin, M; Gumplinger, P; Hadley, DR; Haegel, L; Haesler, A; Haga, Y; Hartfiel, B; Hartz, M; Hayato, Y; Hierholzer, M; Hill, J; Himmel, A; Hirota, S; Horiuchi, S; Huang, K; Ichikawa, AK; Iijima, T; Ikeda, M; Imber, J; Inoue, K; Insler, J; Intonti, RA; Irvine, T; Ishida, T; Ishino, H; Ishitsuka, M; Itow, Y; Izmaylov, A; Jamieson, B; Jang, H; Jiang, M; Joo, KK; Jung, CK; Kaboth, A; Kajita, T; Kameda, J; Karadzhov, Y; Katori, T; Kearns, E; Khabibullin, M; Khotjantsev, A; Kim, JY; Kim, SB; Kishimoto, Y; Kobayashi, T; Koga, M; Konaka, A; Kormos, LL; Korzenev, A; Koshio, Y; Kropp, WR; Kudenko, Y; Kutter, T; Kuze, M; Labarga, L; Lagoda, J; Laveder, M; Lawe, M; Learned, JG; Lim, IT; Lindner, T; Longhin, A; Ludovici, L; Ma, W; Magaletti, L; Mahn, K; Malek, M; Mariani, C; Marti, L; Martin, JF; Martin, C; Martins, PPJ; Mazzucato, E; McCauley, N; McFarland, KS; McGrew, C; Mezzetto, M; Minakata, H; Minamino, A; Mine, S; Mineev, O; Miura, M; Monroe, J; Mori, T; Moriyama, S; Mueller, T; Muheim, F; Nakahata, M; Nakamura, K; Nakaya, T; Nakayama, S; Needham, M; Nicholls, T; Nirkko, M; Nishimura, Y; Noah, E; Nowak, J; Nunokawa, H; O'Keefe, HM; Okajima, Y; Okumura, K; Oser, SM; O'Sullivan, E; Ovsianikova, T; Owen, RA; Oyama, Y; Perez, J; Pac, MY; Palladino, V; Palomino, JL; Paolone, V; Payne, D; Perevozchikov, O; Perkin, JD; Pistillo, C; Playfer, S; Posiadala-Zezula, M; Poutissou, JM; Quilain, B; Quinto, M; Radicioni, E; Ratoff, PN; Ravonel, M; Rayner, MA; Redij, A; Retiere, F; Riccio, C; Richard, E; Rondio, E; Rose, HJ; Ross-Lonegan, M; Rott, C; Rountree, SD; Rubbia, A; Sacco, R; Sakuda, M; Sanchez, MC; Scantamburlo, E; Scholberg, K; Scott, M; Seiya, Y; Sekiguchi, T; Sekiya, H; Shaikhiev, A; Shimizu, I; Shiozawa, M; Short, S; Sinnis, G; Smy, MB; Sobczyk, J; Sobel, HW; Stewart, T; Stone, JL; Suda, Y; Suzuki, Y; Suzuki, AT; Svoboda, R; Tacik, R; Takeda, A; Taketa, A; Takeuchi, Y; Tanaka, HA; Tanaka, HKM; Tanaka, H; Terri, R; Thompson, LF; Thorpe, M; Tobayama, S; Tolich, N; Tomura, T; Touramanis, C; Tsukamoto, T; Tzanov, M; Uchida, Y; Vagins, MR; Vasseur, G; Vogelaar, RB; Walter, CW; Wark, D; Wascko, MO; Weber, A; Wendell, R; Wilkes, RJ; Wilking, MJ; Wilson, JR; Xin, T; Yamamoto, K; Yanagisawa, C; Yano, T; Yen, S; Yershov, N; Yokoyama, M; Zito, M
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Kasuya, S; Kawasaki, M; Yanagida, TT
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402. Measurement of the muon beam direction and muon flux for the T2K neutrino experiment
Suzuki, K; Aoki, S; Ariga, A; Ariga, T; Bay, F; Bronner, C; Ereditato, A; Friend, M; Hartz, M; Hiraki, T; Ichikawa, AK; Ishida, T; Ishii, T; Juget, F; Kikawa, T; Kobayashi, T; Kubo, H; Matsuoka, K; Maruyama, T; Minamino, A; Murakami, A; Nakadaira, T; Nakaya, T; Nakayoshi, K; Otani, M; Oyama, Y; Patel, N; Pistillo, C; Sakashita, K; Sekiguchi, T; Suzuki, SY; Tada, S; Yamada, Y; Yamamoto, K; Yokoyama, M
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403. Non-abelian dark matter solutions for Galactic gamma-ray excess and Perseus 3.5 keV X-ray line
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Willett, KW; Schawinski, K; Simmons, BD; Masters, KL; Skibba, RA; Kaviraj, S; Melvin, T; Wong, OI; Nichol, RC; Cheung, E; Lintott, CJ; Fortson, L
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408. P-MaNGA Galaxies: emission-lines properties - gas ionization and chemical abundances from prototype observations
Belfiore, F; Maiolino, R; Bundy, K; Thomas, D; Maraston, C; Wilkinson, D; Sanchez, SF; Bershady, M; Blanc, GA; Bothwell, M; Cales, SL; Coccato, L; Drory, N; Emsellem, E; Fu, H; Gelfand, J; Law, D; Masters, K; Parejko, J; Tremonti, C; Wake, D; Weijmans, A; Yan, R; Xiao, T; Zhang, K; Zheng, T; Bizyaev, D; Kinemuchi, K; Oravetz, D; Simmons, A
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Abe, K; Adam, J; Aihara, H; Akiri, T; Andreopoulos, C; Aoki, S; Ariga, A; Assylbekov, S; Autiero, D; Barbi, M; Barker, GJ; Barr, G; Bartet-Friburg, P; Bass, M; Batkiewicz, M; Bay, F; Berardi, V; Berger, BE; Berkman, S; Bhadra, S; Blaszczyk, FDM; Blondel, A; Bolognesi, S; Bordini, S; Boyd, SB; Brailsford, D; Bravar, A; Bronner, C; Buchanan, N; Calland, RG; Rodriguez, JC; Cartwright, SL; Castillo, R; Catanesi, MG; Cervera, A; Cherdack, D; Chikuma, N; Christodoulou, G; Clifton, A; Coleman, J; Coleman, SJ; Collazuol, G; Connolly, K; Cremonesi, L; Dabrowska, A; Danko, I; Das, R; Davis, S; de Perio, P; De Rosa, G; Dealtry, T; Dennis, SR; Densham, C; Dewhurst, D; Di Lodovico, F; Di Luise, S; Dolan, S; Drapier, O; Dubowski, T; Duffy, K; Dumarchez, J; Dytman, S; Dziewiecki, M; Emery-Schrenk, S; Ereditato, A; Escudero, L; Ferchichi, C; Feusels, T; Finch, AJ; Fiorentini, GA; Friend, M; Fujii, Y; Fukuda, Y; Furmanski, AP; Galymov, V; Garcia, A; Giffin, S; Giganti, C; Gilje, K; Goeldi, D; Golan, T; Gonin, M; Grant, N; Gudim, D; Hadley, DR; Haegel, L; Haesler, A; Haigh, MD; Hamilton, P; Hansen, D; Hara, T; Hartz, M; Hasegawa, T; Hastings, NC; Hayashino, T; Hayato, Y; Hearty, C; Helmer, RL; Hierholzer, M; Hignight, J; Hillairet, A; Himmel, A; Hiraki, T; Hirota, S; Holeczek, J; Horikawa, S; Hosomi, F; Huang, K; Ichikawa, AK; Ieki, K; Ieva, M; Ikeda, M; Imber, J; Insler, J; Irvine, TJ; Ishida, T; Ishii, T; Iwai, E; Iwamoto, K; Iyogi, K; Izmaylov, A; Jacob, A; Jamieson, B; Jiang, M; Johnson, S; Jo, JH; Jonsson, P; Jung, CK; Kabirnezhad, M; Kaboth, AC; Kajita, T; Kakuno, H; Kameda, J; Kanazawa, Y; Karlen, D; Karpikov, I; Katori, T; Kearns, E; Khabibullin, M; Khotjantsev, A; Kielczewska, D; Kikawa, T; Kilinski, A; Kim, J; King, S; Kisiel, J; Kitching, P; Kobayashi, T; Koch, L; Koga, T; Kolaceke, A; Konaka, A; Kopylov, A; Kormos, LL; Korzenev, A; Koshio, Y; Kropp, W; Kubo, H; Kudenko, Y; Kurjata, R; Kutter, T; Lagoda, J; Lamont, I; Larkin, E; Laveder, M; Lawe, M; Lazos, M; Lindner, T; Lister, C; Litchfield, RP; Longhin, A; Lopez, JP; Ludovici, L; Magaletti, L; Mahn, K; Malek, M; Manly, S; Marino, AD; Marteau, J; Martin, JF; Martins, P; Martynenko, S; Maruyama, T; Matveev, V; Mavrokoridis, K; Mazzucato, E; McCarthy, M; McCauley, N; McFarland, KS; McGrew, C; Mefodiev, A; Metelko, C; Mezzetto, M; Mijakowski, P; Miller, CA; Minamino, A; Mineev, O; Missert, A; Miura, M; Moriyama, S; Mueller, TA; Murakami, A; Murdoch, M; Murphy, S; Myslik, J; Nakadaira, T; Nakahata, M; Nakamura, KG; Nakamura, K; Nakayama, S; Nakaya, T; Nakayoshi, K; Nantais, C; Nielsen, C; Nirkko, M; Nishikawa, K; Nishimura, Y; Nowak, J; O'Keefe, HM; Ohta, R; Okumura, K; Okusawa, T; Oryszczak, W; Oser, SM; Ovsyannikova, T; Owen, RA; Oyama, Y; Palladino, V; Palomino, JL; Paolone, V; Payne, D; Perevozchikov, O; Perkin, JD; Petrov, Y; Pickard, L; Guerra, ESP; Pistillo, C; Plonski, P; Poplawska, E; Popov, B; Posiadala-Zezula, M; Poutissou, JM; Poutissou, R; Przewlocki, P; Quilain, B; Radicioni, E; Ratoff, PN; Ravonel, M; Rayner, MAM; Redij, A; Reeves, M; Reinherz-Aronis, E; Riccio, C; Rodrigues, PA; Rojas, P; Rondio, E; Roth, S; Rubbia, A; Ruterbories, D; Rychter, A; Sacco, R; Sakashita, K; Sanchez, F; Sato, F; Scantamburlo, E; Scholberg, K; Schoppmann, S; Schwehr, JD; Scott, M; Seiya, Y; Sekiguchi, T; Sekiya, H; Sgalaberna, D; Shah, R; Shaker, F; Shaw, D; Shiozawa, M; Short, S; Shustrov, Y; Sinclair, P; Smith, B; Smy, M; Sobczyk, JT; Sobel, H; Sorel, M; Southwell, L; Stamoulis, P; Steinmann, J; Still, B; Suda, Y; Suzuki, A; Suzuki, K; Suzuki, SY; Suzuki, Y; Tacik, R; Tada, M; Takahashi, S; Takeda, A; Takeuchi, Y; Tanaka, HK; Tanaka, HA; Tanaka, MM; Terhorst, D; Terri, R; Thompson, LF; Thorley, A; Tobayama, S; Toki, W; Tomura, T; Touramanis, C; Tsukamoto, T; Tzanov, M; Uchida, Y; Vacheret, A; Vagins, M; Vasseur, G; Wachala, T; Wakamatsu, K; Walter, CW; Wark, D; Warzycha, W; Wascko, MO; Weber, A; Wendell, R; Wilkes, RJ; Wilking, MJ; Wilkinson, C; Williamson, Z; Wilson, JR; Wilson, RJ; Wongjirad, T; Yamada, Y; Yamamoto, K; Yanagisawa, C; Yano, T; Yen, S; Yershov, N; Yokoyama, M; Yoo, J; Yoshida, K; Yuan, T; Yu, M; Zalewska, A; Zalipska, J; Zambelli, L; Zarembo, K; Ziembicki, M; Zimmerman, ED; Zito, M; Zmuda, J
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419. Search for dinucleon decay into pions at Super-Kamiokande
Gustafson, J; Abe, K; Haga, Y; Hayato, Y; Ikeda, M; Iyogi, K; Kameda, J; Kishimoto, Y; Miura, M; Moriyama, S; Nakahata, M; Nakajima, T; Nakano, Y; Nakayama, S; Orii, A; Sekiya, H; Shiozawa, M; Takeda, A; Tanaka, H; Tomura, T; Wendell, RA; Irvine, T; Kajita, T; Kametani, I; Kaneyuki, K; Nishimura, Y; Richard, E; Okumura, K; Labarga, F; Fernandez, P; Berkman, S; Tanaka, HA; Tobayama, S; Kearns, E; Raaf, JL; Stone, JL; Sulak, LR; Goldhaber, M; Carminati, G; Kropp, WR; Mine, S; Weatherly, P; Renshaw, A; Smy, MB; Sobel, HW; Takhistov, V; Ganezer, KS; Hartfiel, BL; Hill, J; Hong, N; Kim, JY; Lim, IT; Akiri, T; Himmel, A; Scholberg, K; Walter, CW; Wongjirad, T; Ishizuka, T; Tasaka, S; Jang, JS; Learned, JG; Matsuno, S; Smith, SN; Hasegawa, T; Ishida, T; Ishii, T; Kobayashi, T; Nakadaira, T; Nakamura, K; Oyama, Y; Sakashita, K; Sekiguchi, T; Tsukamoto, T; Suzuki, AT; Takeuchi, Y; Yano, T; Hirota, S; Huang, K; Ieki, K; Kikawa, T; Minamino, A; Nakaya, T; Suzuki, K; Takahashi, S; Fukuda, Y; Choi, K; Itow, Y; Mitsuka, G; Suzuki, T; Mijakowski, P; Hignight, J; Imber, J; Jung, CK; Palomino, JL; Yanagisawa, C; Ishino, H; Kayano, T; Kibayashi, A; Koshio, Y; Mori, T; Sakuda, M; Kuno, Y; Tacik, R; Kim, SB; Okazawa, H; Choi, Y; Nishijima, K; Koshiba, M; Suda, Y; Yokoyama, YTM; Yokoyama, M; Bronner, C; Martens, K; Marti, L; Suzuki, Y; Vagins, MR; Martin, JF; de Perio, P; Konaka, A; Wilking, MJ; Chen, S; Zhang, Y; Wilkes, RJ
PHYSICAL REVIEW D 91 (2015) 72009
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422. Associated jet and subjet rates in light-quark and gluon jet discrimination
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424. Role of supersymmetric heavy Higgs boson production in the self-coupling measurement of 125 GeV Higgs boson at the LHC
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Garmash, A; Bondar, A; Kuzmin, A; Abdesselam, A; Adachi, I; Aihara, H; Al Said, S; Asner, DM; Aulchenko, V; Aushev, T; Ayad, R; Bakich, AM; Bala, A; Bhardwaj, V; Bobrov, A; Bonvicini, G; Bozek, A; Bracko, M; Browder, TE; Cervenkov, D; Chekelian, V; Chen, A; Cheon, BG; Chilkin, K; Chistov, R; Cho, K; Chobanova, V; Choi, Y; Cinabro, D; Dalseno, J; Dolezal, Z; Drutskoy, A; Dutta, D; Eidelman, S; Epifanov, D; Farhat, H; Fast, JE; Ferber, T; Frey, A; Frost, O; Gaur, V; Ganguly, S; Gillard, R; Glattauer, R; Goh, YM; Golob, B; Haba, J; Hara, T; Hayasaka, K; Hayashii, H; He, XH; Hoshi, Y; Hou, WS; Hsiung, YB; Hyun, HJ; Iijima, T; Ishikawa, A; Itoh, R; Iwasaki, Y; Iwashita, T; Jaegle, I; Julius, T; Kang, JH; Kato, E; Katrenko, P; Kawai, H; Kawasaki, T; Kichimi, H; Kiesling, C; Kim, DY; Kim, JB; Kim, JH; Kim, KT; Kim, MJ; Kim, YJ; Kinoshita, K; Klucar, J; Ko, BR; Kody, P; Korpar, S; Krizan, P; Krokovny, P; Kuhr, T; Kwon, YJ; Lee, SH; Li, Y; Gioi, LL; Libby, J; Liu, C; Liu, ZQ; Liventsev, D; Lukin, P; Matvienko, D; Miyabayashi, K; Miyata, H; Mizuk, R; Mohanty, GB; Moll, A; Mussa, R; Nakano, E; Nakao, M; Natkaniec, Z; Nayak, M; Nedelkowska, E; Nisar, NK; Nishida, S; Nitoh, O; Okuno, S; Olsen, SL; Ostrowicz, W; Pakhlov, P; Park, H; Park, HK; Pedlar, TK; Pestotnik, R; Petric, M; Piilonen, LE; Ribezl, E; Ritter, M; Rohrken, M; Rostomyan, A; Ryu, S; Saito, T; Sakai, Y; Sandilya, S; Santel, D; Sanuki, T; Sato, Y; Schneider, O; Schnell, G; Schwartz, AJ; Semmler, D; Senyo, K; Sevier, ME; Shapkin, M; Shebalin, V; Shen, CP; Shibata, TA; Shiu, JG; Schwartz, B; Simon, F; Sohn, YS; Sokolov, A; Solovieva, E; Stanic, S; Staric, M; Steder, M; Sumiyoshi, T; Tamponi, U; Tanida, K; Tatishvili, G; Teramoto, Y; Trabelsi, K; Uchida, M; Unno, Y; Uno, S; Urquijo, P; Usov, Y; Van Hulse, C; Vanhoefer, P; Varner, G; Vinokurova, A; Vorobyev, V; Wagner, MN; Wang, CH; Wang, P; Wang, XL; Watanabe, M; Watanabe, Y; Williams, KM; Won, E; Yamamoto, H; Yamashita, Y; Yashchenko, S; Yook, Y; Yuan, CZ; Zhang, ZP; Zhilich, V; Zupanc, A
PHYSICAL REVIEW D 91 (2015) 72003
433. Solution to the baryon-dark-matter coincidence problem in the constrained minimal supersymmetric model with a 126-GeV Higgs boson
Kamada, A; Kawasaki, M; Yamada, M
PHYSICAL REVIEW D 91 (2015) 81301
434. Search for Neutrinos from Annihilation of Captured Low-Mass Dark Matter Particles in the Sun by Super-Kamiokande
Choi, K; Abe, K; Haga, Y; Hayato, Y; Iyogi, K; Kameda, J; Kishimoto, Y; Miura, M; Moriyama, S; Nakahata, M; Nakano, Y; Nakayama, S; Sekiya, H; Shiozawa, M; Suzuki, Y; Takeda, A; Tomura, T; Wendell, RA; Irvine, T; Kajita, T; Kametani, I; Kaneyuki, K; Lee, KP; Nishimura, Y; Okumura, K; McLachlan, T; Labarga, L; Kearns, E; Raaf, JL; Stone, JL; Sulak, LR; Berkman, S; Tanaka, HA; Tobayama, S; Goldhaber, M; Carminati, G; Kropp, WR; Mine, S; Renshaw, A; Smy, MB; Sobel, HW; Ganzezer, KS; Hill, J; Hong, N; Kim, JY; Lim, IT; Akiri, T; Himmel, A; Scholberg, K; Walter, CW; Wongjirad, T; Ishizuka, T; Tasaka, S; Jang, JS; Learned, G; Matsuno, S; Smith, SN; Hasegawa, T; Ishida, T; Ishii, T; Kobayashi, T; Nakadaira, T; Nakamura, K; Oyama, Y; Sakashita, K; Sekiguchi, T; Tsukamoto, T; Suzuki, AT; Takeuchi, Y; Bronner, C; Hirota, S; Huang, K; Ieki, K; Ikeda, M; Kikawa, T; Minamino, A; Nakaya, T; Suzuki, K; Takahashi, S; Fukuda, Y; Itow, Y; Mitsuka, G; Mijakowski, P; Hignight, J; Imber, J; Jung, CK; Yanagisawa, C; Ishino, H; Kibayashi, A; Koshio, Y; Mori, T; Sakuda, M; Yano, T; Kuno, Y; Tacik, R; Kim, SB; Okazawa, H; Choi, Y; Nishijima, K; Koshiha, M; Totsuka, Y; Yokoyama, M; Martens, K; Marti, L; Vagins, MR; Martin, JF; De Perio, P; Konaka, A; Wilking, MJ; Chen, S; Zhang, Y; Wilkes, RJ
PHYSICAL REVIEW LETTERS 114 (2015) 141301
435. SOME REMARKS ON NEPOMECHIE-WANG EIGENSTATES FOR SPIN 1/2 XXX MODEL
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MOSCOW MATHEMATICAL JOURNAL 15 (2015) pp.337-352
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Finoguenov, A; Tanaka, M; Cooper, M; Allevalo, V; Cappelluti, N; Choi, A; Heymans, C; Bauer, FE; Ziparo, F; Ranalli, P; Silverman, J; Brandt, WN; Xue, YQ; Mulchaey, J; Howes, L; Schmid, C; Wilman, D; Comastri, A; Hasinger, G; Mainieri, V; Luo, B; Tozzi, P; Rosati, P; Capak, P; Popesso, P
ASTRONOMY & ASTROPHYSICS 576 (2015) A130
437. Cosmology in bimetric theory with an effective composite coupling to matter
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JOURNAL OF COSMOLOGY AND ASTROPARTICLE PHYSICS 4 (2015) 8
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Abe, K; Adam, J; Aihara, H; Akiri, T; Andreopoulos, C; Aoki, S; Ariga, A; Assylbekov, S; Autiero, D; Barbi, M; Barker, GJ; Barr, G; Bartet-Friburg, P; Bass, M; Batkiewicz, M; Bay, F; Berardi, V; Berger, BE; Berkman, S; Bhadra, S; Blaszczak, FDM; Blondel, A; Bojchko, C; Bordoni, S; Boyd, SB; Brailsford, D; Bravar, A; Bronner, C; Buchanan, N; Calland, RG; Rodriguez, JC; Cartwright, SL; Castillo, R; Catanesi, MG; Cervera, A; Cherdack, D; Christodoulou, G; Clifton, A; Coleman, J; Coleman, SJ; Collazuol, G; Connolly, K; Cremonesi, L; Dabrowska, A; Danko, I; Das, R; Davis, S; de Perio, P; De Rosa, G; Dealtry, T; Dennis, SR; Densham, C; Dewhurst, D; Di Lodovico, F; Di Luise, S; Drapier, O; Dubowski, T; Duffy, K; Dumarchez, J; Dytman, S; Dziewiecki, M; Emery-Schrenk, S; Ereditato, A; Escudero, L; Feusels, T; Finch, AJ; Fiorentini, GA; Friend, M; Fujii, Y; Fukuda, Y; Furmanski, AP; Galymov, V; Garcia, A; Giffin, S; Giganti, C; Gilje, K; Goeldi, D; Golan, T; Gonin, M; Grant, N; Gudim, D; Hadley, DR; Haegel, L; Haesler, A; Haigh, MD; Hamilton, P; Hansen, D; Hara, T; Hartz, M; Hasegawa, T; Hastings, NC; Hayashino, T; Hayato, Y; Hearty, C; Helmer, RL; Hierholzer, M; Hignight, J; Hillairet, A; Himmel, A; Hiraki, T; Hirota, S; Holeczek, J; Horikawa, S; Huang, K; Ichikawa, AK; Ieki, K; Ieva, M; Ikeda, M; Imber, J; Insler, J; Irvine, TJ; Ishida, T; Ishii, T; Iwai, E; Iwamoto, K; Iyogi, K; Izmaylov, A; Jacob, A; Jamieson, B; Johnson, RA; Johnson, S; Jo, JH; Jonsson, P; Jung, CK; Kabirnezhad, M; Kaboth, AC; Kajita, T; Kakuno, H; Kameda, J; Kanazawa, Y; Karlen, D; Karpikov, I; Katori, T; Kearns, E; Khabibullin, M; Khotiantsev, A; Kielczewska, D; Kikawa, T; Kilinski, A; Kim, J; King, S; Kisiel, J; Kitching, P; Kobayashi, T; Koch, L; Koga, T; Kolaceke, A; Konaka, A; Kormos, LL; Korzenev, A; Koshio, Y; Kropp, W; Kubo, H; Kudenko, Y; Kurjata, R; Kutter, T; Lagoda, J; Laihem, K; Lamont, I; Larkin, E; Laveder, M; Lawe, M; Lazos, M; Lindner, T; Lister, C; Litchfield, RP; Longhin, A; Lopez, JP; Ludovici, L; Magaletti, L; Mahn, K; Malek, M; Manly, S; Marino, AD; Marteau, J; Martin, JF; Martins, P; Martynenko, S; Maruyama, T; Matveev, V; Mavrokoridis, K; Mazzucato, E; McCarthy, M; McCauley, N; McFarland, KS; McGrew, C; Mefodiev, A; Metelko, C; Mezzetto, M; Mijakowski, P; Miller, CA; Minamino, A; Mineev, O; Missert, A; Miura, M; Moriyama, S; Mueller, TA; Murakami, A; Murdoch, M; Murphy, S; Myslik, J; Nakadaira, T; Nakahata, M; Nakamura, KG; Nakamura, K; Nakayama, S; Nakaya, T; Nakayoshi, K; Nantais, C; Nielsen, C; Nirliko, M; Nishikawa, K; Nishimura, Y; Nowak, J; O'Keefe, HM; Ohta, R; Okumura, K; Okusawa, T; Oryszczak, W; Oser, SM; Ovsyannikova, T; Owen, RA; Oyama, Y; Palladino, V; Palomino, JL; Paolone, V; Payne, D; Perevozchikov, O; Perkin, JD; Petrov, Y; Pickard, L; Guerra, ESP; Pistillo, C; Plonski, P; Poplawska, E; Popov, B; Posiadala-Zezula, M; Poutissou, JM; Poutissou, R; Przewlocki, P; Quilain, B; Radicioni, E; Ratoff, PN; Ravonel, M; Rayner, MAM; Redij, A; Reeves, M; Reinherz-Aronis, E; Riccio, C; Rodrigues, PA; Rojas, P; Rondio, E; Roth, S; Rubbia, A; Ruterbories, D; Sacco, R; Sakashita, K; Sanchez, F; Sato, F; Scantamburlo, E; Scholberg, K; Schoppmann, S; Schwehr, J; Scott, M; Seiya, Y; Sekiguchi, T; Sekiya, H; Sgalaberna, D; Shah, R; Shaker, F; Shiozawa, M; Short, S; Shustrov, Y; Sinclair, P; Smith, B; Smy, M; Sobczyk, JT; Sobel, H; Sorel, M; Southwell, L; Stamoulis, P; Steinmann, J; Still, B; Suda, Y; Suzuki, A; Suzuki, K; Suzuki, SY; Suzuki, Y; Tacik, R; Tada, M; Takahashi, S; Takeda, A; Takeuchi, Y; Tanaka, HK; Tanaka, HA; Tanaka, MM; Terhorst, D; Terri, R; Thompson, LF; Thorley, A; Tobayama, S; Toki, W; Tomura, T; Totsuka, Y; Touramanis, C; Tsukamoto, T; Tzanov, M; Uchida, Y; Vacheret, A; Vagins, M; Vasseur, G; Wachala, T; Waldron, AV; Wakamatsu, K; Walter, CW; Wark, D; Warzycha, W; Wascko, MO; Weber, A; Wendell, R; Wilkes, RJ; Wilking, MJ; Wilkinson, C; Williamson, Z; Wilson, JR; Wilson, RJ; Wongjirad, T; Yamada, Y; Yamamoto, K; Yanagisawa, C; Yano, T; Yen, S; Yershov, N; Yokoyama, M; Yoshida, K; Yuan, T; Yu, M; Zalewska, A; Zalipska, J; Zambelli, L; Zarembo, K; Ziembicki, M; Zimmerman, ED; Zito, M; Zmuda, J
PROGRESS OF THEORETICAL AND EXPERIMENTAL PHYSICS 4 (2015) 043C01
441. Can a spectator scalar field enhance inflationary tensor mode?
Fujita, T; Yokoyama, J; Yokoyama, S
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442. Instanton operators and symmetry enhancement in 5D supersymmetric gauge theories
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Rowe, BTP; Jarvis, M; Mandelbaum, R; Bernstein, GM; Bosch, J; Simet, M; Meyers, JE; Kacprzak, T; Nakajima, R; Zuntz, J; Miyatake, H; Dietrich, JP; Armstrong, R; Melchior, P; Gill, MSS
ASTRONOMY AND COMPUTING 10 (2015) pp.121-150
444. Physics at the entangling surface
Ohmori, K; Tachikawa, Y
JOURNAL OF STATISTICAL MECHANICS-THEORY AND EXPERIMENT (2015) P04010
445. PRODUCT FORMULA FOR p -ADIC EPSILON FACTORS
Abe, T; Marmora, A
JOURNAL OF THE INSTITUTE OF MATHEMATICS OF JUSSIEU 14 (2015) pp.275-377
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Li, CZ
ASIAN JOURNAL OF MATHEMATICS 19 (2015) pp.203-234
447. DISCOVERY OF A DISK GAP CANDIDATE AT 20 AU IN TW HYDRAE
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ASTROPHYSICAL JOURNAL LETTERS 802 (2015) L17
448. Large-scale environment of $z \sim 5.7$ CIV absorption systems -II. Spectroscopy of Lyman α emitters
Diaz, CG; Ryan-Weber, EV; Cooke, J; Koyama, Y; Ouchi, M
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 448 (2015) pp.1240-1270
449. Discovery of an overdensity of Lyman α emitters around a $z \sim 4$ QSO with the Large Binocular Telescope
Adams, SM; Martini, P; Croxall, KV; Overzier, RA; Silverman, JD
MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY 448 (2015) pp.1335-1344

PREPRINTS

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Probing Bino-Gluino Coannihilation at the LHC
Natsumi Nagata, Hidetoshi Otono, Satoshi Shirai
Phys. Lett. B 748 (2015) pp. 24-29, arXiv:1504.00504

IPMU15-0038

QCD Effects on Direct Detection of Wino Dark Matter
Junji Hisano, Koji Ishiwata, Natsumi Nagata
JHEP 1506 (2015) 97, arXiv:1504.00915

IPMU15-0039

Unitarity-controlled resonances after Higgs discovery
Christoph Englert, Philip Harris, Michael Spannowsky, Michihisa Takeuchi
Phys. Rev. D 92 (2015) 13003, arXiv:1503.07459

IPMU15-0040

4D/3D reduction of dualities: mirrors on the circle
Antonio Amariti, Davide Forcella, Claudius Klare, Domenico Orlando, Susanne Reffert
JHEP 10 (2015) 48, arXiv:1504.02783

IPMU15-0041

A review of the T_N theory and its cousins
Yuji Tachikawa
PTEP 11 (2015) 11B10238, arXiv: 1504.01481

IPMU15-0042

Predictions for the Dirac CP Violation Phase in the Neutrino Mixing Matrix
I. Girardi, S. T. Petcov, A. V. Titov
Int. J. Mod. Phys. A 30 (2015) 1530035, arXiv:1504.02402

IPMU15-0043

Seminatural SUSY from E_7 Nonlinear Sigma Model
Keisuke Harigaya, Tsutomu T. Yanagida, Norimi Yokozaki
PTEP 8 (2015) 083B0315, arXiv:1504.02266

IPMU15-0044

Moduli of Bridgeland semistable objects on 3-folds and Donaldson-Thomas invariants
Dulip Piyaratne, Yukinobu Toda
arXiv:1504.01177

IPMU15-0045

Derived varieties of complexes and Kostant's theorem for $gl(m|n)$
Mikhail Kapranov, Svyatoslav Pimenov
Physica A: Statistical Mechanics and its Applications 445 (2016) pp. 328-334, arXiv:1503.00339

IPMU15-0046

Indirect Probe of Electroweak-Interacting Particles at Future Lepton Colliders
Keisuke Harigaya, Koji Ichikawa, Anirban Kundu, Shigeki Matsumoto, Satoshi Shirai
JHEP 1509 (2015) 105, arXiv:1504.03402

IPMU15-0047

Chemical Feature of Eu abundance in the Draco dwarf spheroidal galaxy
Takuji Tsujimoto, Miho N. Ishigaki, Toshikazu Shigeyama, Wako Aoki
Publ. Astron. Soc. Jap. 67 (2015) L36, arXiv:1504.03357

IPMU15-0048

Spontaneous thermal Leptogenesis via Majoron oscillation
Masahiro Ibe, Kunio Kaneta
Phys. Rev. D 92 (2015) 035019, arXiv:1504.04125

IPMU15-0049

Observable dark radiation from cosmologically safe QCD axion
Masahiro Kawasaki, Masaki Yamada, Tsutomu T. Yanagida
Phys. Rev. D 91 (2015) 125018, arXiv:1504.04126

IPMU15-0050

A Model of Visible QCD Axion
Hajime Fukuda, Keisuke Harigaya, Masahiro Ibe, Tsutomu T. Yanagida
Phys. Rev. D 92 (2015) 015021, arXiv:1504.06084

IPMU15-0051

Integrality from 2d $N=(2,2)$ Dualities
Masahito Yamazaki, Wenbin Yan
J. Phys. A48 (2015) 394001, arXiv:1504.05540

IPMU15-0052

O(1) GeV dark matter in SUSY and a very light pseudoscalar at the LHC
Chengcheng Han, Doyoun Kim, Shoaib Munir, Myeonghun Park
JHEP 1507 (2015) 002, arXiv:1504.05085

IPMU15-0053

Wino Dark Matter in the light of AMS-02 2015
Masahiro Ibe, Shigeki Matsumoto, Satoshi Shirai, Tsutomu T. Yanagida
Phys. Rev. D 91 (2015) 111701, arXiv:1504.05554

IPMU15-0054

Twists and braids for general 3-fold flops
Will Donovan, Michael Wemyss
arXiv:1504.05320

IPMU15-0055

AMS-02 Antiprotons from Annihilating or Decaying Dark Matter
Koichi Hamaguchi, Takeo Moroi, Kazunori Nakayama,
Phys. Lett. B747 (2015) pp. 523-528, arXiv:1504.05937

IPMU15-0056

Particle Production after Inflation with Non-minimal Derivative Coupling to Gravity
Yohei Ema, Ryusuke Jinno, Kyohei Mukaida, Kazunori Nakayama
JCAP 1510 (2015) no.10, 020, arXiv:1504.07119

IPMU15-0057

Hamiltonian analysis of nonprojectable Hořava-Lifshitz gravity with $U(1)$ symmetry
Shinji Mukohyama, Ryo Namba, Rio Saitou, Yota Watanabe
Phys. Rev. D 92 (2015) 024005, arXiv:1504.07357

IPMU15-0058

Contact and symplectic structures on closed Lorentzian manifolds
Amir Babak Aazami
arXiv:1504.06425

IPMU15-0059

Axion domain wall baryogenesis
Ryuji Daido, Naoya Kitajima, Fuminobu Takahashi
JCAP 1507 (2015) no.07, 046, arXiv:1504.07917

IPMU15-0060

Dark matter for excess of AMS-02 positrons and antiprotons
Chuan-Hung Chen, Cheng-Wei Chiang, Takaaki Nomura
Phys. Lett. B 747, 495 (2015), arXiv:1504.07848

IPMU15-0061

On the restriction of Zuckerman's derived functor modules $A_q(\lambda)$ to reductive subgroups
Yoshiki Oshima
Amer. J. Math 137 (2015) no.4, pp. 1099-1138, arXiv:1107.2833

IPMU15-0062

Discrete branching laws for minimal holomorphic representations
Jan Moellers, Yoshiki Oshima
J. Lie Theory 25 (2015) pp. 949-983, arXiv:1402.3351

IPMU15-0063

Signatures of Leptoquarks at the LHC and Right-handed Neutrinos
Jason L. Evans, Natsumi Nagata
Phys. Rev. D 92 (2015) 015022, arXiv:1505.00513

IPMU15-0064

Gravitational wave signals from short-lived topological defects in the MSSM
Ayuki Kamada, Masaki Yamada
JCAP 1510 (2015) no.10, 021, arXiv:1505.01167

IPMU15-0065

Global uniqueness of small representations
Toshiyuki Kobayashi, Gordan Savin
arXiv:1412.8019

IPMU15-0066

Muon g-2 in Focus Point SUSY
Keisuke Harigaya, Tsutomu T. Yanagida, Norimi Yokozaki
Phys. Rev. D 92 (2015) 035011, arXiv:1505.01987

IPMU15-0067

Parity-violating CMB correlators with non-decaying statistical anisotropy
Nicola Bartolo, Sabino Matarrese, Marco Peloso, Maresuke Shiraishi
JCAP 07 (2015) 039, arXiv:1505.02193

IPMU15-0068

Jumping into buckets, or How to decontaminate overlapping fat jets
Koichi Hamaguchi, Seng Pei Liew, Martin Stoll
Phys. Rev. D 92 (2015) 015012, arXiv:1505.02930

IPMU15-0069

Charged Q-balls in gauge mediated SUSY breaking models
Jeong-Pyong Hong, Masahiro Kawasaki, Masaki Yamada
Phys. Rev. D 92 (2015) 063521, arXiv:1505.02594

IPMU15-0070

Prospects for Higgs coupling measurements in SUSY with radiatively-driven naturalness
Kyu Jung Bae, Howard Baer, Natsumi Nagata, Hasan Serce
Phys. Rev. D 92 (2015) 035006, arXiv:1505.03541

IPMU15-0071

On adiabatic invariant in generalized Galileon theories
Yohei Ema, Ryusuke Jinno, Kyohei Mukaida, Kazunori Nakayama
JCAP 1510 (2015) no.10, 049, arXiv:1505.04670

IPMU15-0072

Mass Splitting between Haves and Have-nots
Keisuke Harigaya, Masahiro Ibe, Motoo Suzuki
JHEP 1509 (2015) 155, arXiv:1505.05024

IPMU15-0073

Standard Model Effective Field Theory: Integrating out a Generic Scalar
Cheng-Wei Chiang, Ran Huo
JHEP 1509 (2015) 152, arXiv:1505.06334

IPMU15-0074

The holographic entropy cone
Ning Bao, Sepehr Nezami, Hiroshi Ooguri, Bogdan Stoica, James Sully, Michael Walter
JHEP 09 (2015) 130, arXiv:1505.07839

IPMU15-0075

Peccei-Quinn Symmetry from Dynamical Supersymmetry Breaking
Keisuke Harigaya, Masahiro Ibe, Kai Schmitz, Tsutomu T. Yanagida
Phys. Rev. D 92 (2015) 075003, arXiv:1505.07388

IPMU15-0076

Domain Wall Formation from Level Crossing in the Axiverse
Ryuji Daido, Naoya Kitajima, Fuminobu Takahashi
Phys. Rev. D 92 (2015) 063512, arXiv:1505.07670

IPMU15-0077

cMERA as Surface/State Correspondence in AdS/CFT
Masamichi Miyaji, Tokiro Numasawa, Noburo Shiba, Tadashi Takayanagi, Kento Watanabe
Phys. Rev. Lett. 115 (2015) 171602, arXiv:1506.01353

IPMU15-0078

Cosmological Selection of Multi-TeV Supersymmetry
Keisuke Harigaya, Masahiro Ibe, Kai Schmitz, Tsutomu T. Yanagida
Phys. Lett. B 749 (2015) pp.298-303, arXiv:1506.00426

IPMU15-0079

Standard Model Effective Field Theory: Integrating out Vector-Like Fermions
Ran Huo
JHEP 1509 (2015) 037, arXiv:1506.00840

IPMU15-0080

Fingers-of-God effect of infalling satellite galaxies
Chiaki Hikage, Kazuhiro Yamamoto
Mon. Not. Roy. Astron. Soc. 455 (2015) L77-L81, arXiv:1506.01100

IPMU15-0081

Minimal theory of massive gravity
Antonio De Felice, Shinji Mukohyama
Phys. Lett. B 752 (2016) pp.302-305, arXiv:1506.01594

IPMU15-0082

Stability of the Early Universe in Bigravity Theory
Katsuki Aoki, Kei-ichi Maeda, Ryo Namba
Phys. Rev. D 92 (2015) 044054, arXiv:1506.04543

IPMU15-0083

Interpretations of the ATLAS Diboson Resonances
Junji Hisano, Natsumi Nagata, Yuji Omura
Phys. Rev. D 92 (2015) 055001, arXiv:1506.03931

IPMU15-0084

Beyond the Dark matter effective field theory and a simplified model approach at colliders
Seungwon Baek, P. Ko, Myeonghun Park, Wan-Il Park, Chae-hyun Yu
Phys. Lett. B 756 (2016) 289, arXiv:1506.06556

IPMU15-0085

Cosmologically safe QCD axion as a present from extra dimension
Masahiro Kawasaki, Masaki Yamada, Tsutomu T. Yanagida
Phys. Lett. B750 (2015) pp.12-16, arXiv:1506.05214

IPMU15-0086

Revisiting the Minimal Chaotic Inflation Model
Keisuke Harigaya, Masahiro Ibe, Masahiro Kawasaki, Tsutomu T. Yanagida
Phys. Lett. B756 (2016) pp.113-117, arXiv:1506.05250

- IPMU15-0087**
Focus Point Gauge Mediation with Incomplete Adjoint Messengers and Gauge Coupling Unification
Gautam Bhattacharyya, Tsutomu T. Yanagida, Norimi Yokozaki
Phys. Lett. B749 (2015) pp.82-87, arXiv:1506.05962
- IPMU15-0088**
Enhancement of signal sensitivity with mistagged charm quarks
Doojin Kim, Myeonghun Park
Phys. Lett. B 758 (2016) pp.190-194, arXiv:1507.03990
- IPMU15-0089**
Evidence for Halo Assembly Bias in Massive Clusters
Hironao Miyatake, Surhud More, Masahiro Takada, David N. Spergel, Rachel Mandelbaum, Eli S. Rykoff, Eduardo Rozo
Phys. Rev. Lett. 116 (2016) 041301, arXiv:1506.06135
- IPMU15-0090**
Measuring primordial anisotropic correlators with CMB spectral distortions
Maresuke Shiraishi, Michele Liguori, Nicola Bartolo, Sabino Matarrese
Phys. Rev. D 92 (2015) 083502, arXiv:1506.06670
- IPMU15-0091**
On RC varieties without smooth rational curves
Ilya Karzhemanov
- IPMU15-0092**
Radiative Corrections to Light Neutrino Masses in Low Scale Type I Seesaw Scenario and Neutrinoless Double Beta Decay
J. Lopez-Pavon, E. Molinaro, S. T. Petcov
JHEP 1511 (2015) 030, arXiv:1506.05296
- IPMU15-0093**
A scenario of heavy but visible baryonic dark matter
Ran Huo, Shigeki Matsumoto, Yue-Lin Sming Tsai, Tsutomu T. Yanagida
JHEP 1609 (2016) 162, arXiv:1506.06929
- IPMU15-0094**
Restriction of most degenerate representations of $O(1,N)$ with respect to symmetric pairs
Jan Moellers, Yoshiki Oshima
J. Math. Sci. Univ. Tokyo (Kodaira Centennial Issue) 22 (2015) pp.279-338,
- IPMU15-0095**
Knapp-Stein type intertwining operators for symmetric pairs
Jan Moellers, Bent Orsted, Yoshiki Oshima
Adv. Math. 294 (2016) pp.256-306, arXiv:1309.3904
- IPMU15-0096**
Thermalization Process after Inflation and Effective Potential of Scalar Field
Kyohei Mukaida, Masaki Yamada
JCAP 02 (2016) 003, arXiv:1506.07661
- IPMU15-0097**
Statistics of Flux Vacua for Particle Physics
Taizan Watari
JHEP 1511 (2015) 065, arXiv:1506.08433
- IPMU15-0098**
Probing Bino-Wino Coannihilation at the LHC
Natsumi Nagata, Hidetoshi Otono, Satoshi Shirai
JHEP 10 (2015) 086, arXiv:1506.08206
- IPMU15-0099**
Dynamics of Peccei-Quinn Breaking Field after Inflation and Axion Isocurvature Perturbations
Keisuke Harigaya, Masahiro Ibe, Masahiro Kawasaki, Tsutomu T. Yanagida
JCAP 1511 (2015) no.11, 003, arXiv:1507.00119
- IPMU15-0100**
Microlocal sheaves and quiver varieties
Roman Bezrukavnikov, Mikhail Kapranov
Ann. Fac. Sci Toulouse 25 (2016) pp.473-516, arXiv:1506.07050
- IPMU15-0101**
Prospects for Spin-1 Resonance Search at 13 TeV LHC and the ATLAS Diboson Excess
Tomohiro Abe, Teppei Kitahara, Mihoko Nojiri
JHEP 1602 (2016) 084, arXiv:1507.01681
- IPMU15-0102**
Derivative-dependent metric transformation and physical degrees of freedom
Guillem Domenech, Shinji Mukohyama, Ryo Namba, Atsushi Naruko, Rio Saitou, Yota Watanabe
Phys. Rev. D 92 (2015) 084027, arXiv:1507.05390
- IPMU15-0103**
Nucleon Electric Dipole Moments in High-Scale Supersymmetric Models
Junji Hisano, Daiki Kobayashi, Wataru Kuramoto, Takumi Kuwahara
JHEP 1511 (2015) 085, arXiv:1507.05836
- IPMU15-0104**
Diboson Resonance as a Portal to Hidden Strong Dynamics
Cheng-Wei Chiang, Hajime Fukuda, Keisuke Harigaya, Masahiro Ibe, Tsutomu T. Yanagida
JHEP 1511 (2015) 015, arXiv:1507.02483
- IPMU15-0105**
Bulk Locality and Boundary Creating Operators
Yu Nakayama, Hiroshi Ooguri
JHEP 1510 (2015) 114, arXiv:1507.04130
- IPMU15-0106**
The geometry of gravitational lensing magnification
Amir Babak Aazami, Marcus C. Werner
J. Geom. Phys. 100 (2016) pp.52-61, arXiv:1507.02765
- IPMU15-0107**
 $6d N=(1,0)$ theories on S^1/T^2 and class S theories: part II
K. Ohmori, H. Shimizu, Y. Tachikawa, K. Yonekura
JHEP12 (2015) 131, arXiv:1508.00915
- IPMU15-0108**
Pure Gravity Mediation and Spontaneous $B-L$ Breaking from Strong Dynamics
Kaladi S. Babu, Kai Schmitz, Tsutomu T. Yanagida
Nucl. Phys. B905 (2016) pp.73-95, arXiv:1507.04467
- IPMU15-0109**
Mukai flops and P-twists
Nicolas Addington, Will Donovan, Ciaran Meachan
arXiv:1507.02595
- IPMU15-0110**
Moduli spaces of torsion sheaves on K3 surfaces and derived equivalences
Nicolas Addington, Will Donovan, Ciaran Meachan
J. Lond. Math. Soc. (2) 93(3) pp.846-865, 2016, arXiv:1507.02597
- IPMU15-0111**
Flavor-Changing Neutral-Current Decays in Top-Specific Variant Axion Model
Cheng-Wei Chiang, Hajime Fukuda, Michihisa Takeuchi, Tsutomu T. Yanagida
JHEP 1511 (2015) 057, arXiv:1507.04354
- IPMU15-0112**
Hilbert series and operator bases in effective field theories
Brian Henning, Xiaochuan Lu, Tom Melia, Hitoshi Murayama
Commun. Math. Phys. 347 (2016) no.2, pp.363-388, arXiv:1507.07240
- IPMU15-0113**
Antisymmetric galaxy cross-correlations as a cosmological probe
Liang Dai, Marc Kamionkowski, Ely D. Kovetz, Alvise Raccanelli, Maresuke Shiraishi
Phys. Rev. D 93 (2016) 023507, arXiv:1507.05618
- IPMU15-0114**
Future Constraints on Angle-Dependent Non-Gaussianity from Large Radio Surveys
Alvise Raccanelli, Maresuke Shiraishi, Nicola Bartolo, Daniele Bertacca, Michele Liguori, Sabino Matarrese, Ray P. Norris, David Parkinson
arXiv:1507.05903
- IPMU15-0115**
COMIC: A Package for the Minimization of Kinematic Functions with Constraints
Won Sang Cho, James S. Gainer, Doojin Kim, Konstantin T. Matchev, Filip Moortgat, Luc Pape, Myeonghun Park
JHEP 1601 (2016) 026, arXiv:1508.00589
- IPMU15-0116**
Shock wave structure in astrophysical flows with account of photon transfer
Alexey Tolstov, Sergei Blinnikov, Shigehiro Nagataki, Ken ʼfichi Nomoto
Astrophys. J. 811 (2015) no.1, 47, arXiv:1412.1434
- IPMU15-0117**
Strongly broken Peccei-Quinn symmetry in the early Universe
Fuminobu Takahashi, Masaki Yamada
JCAP 1510 (2015) no.10, 010, arXiv:1507.06387
- IPMU15-0118**
Leptogenesis in an $SU(5) \times A5$ Golden Ratio Flavour Model: Addendum
Julia Gehrlein, S. T. Petcov, Martin Spinrath, Xinyi Zhang
Nucl. Phys. B899 (2015) pp.617-630, arXiv:1508.07930
- IPMU15-0119**
Gravity Dual of Quantum Information Metric
Masamichi Miyaji, Tokiro Numasawa, Noburo Shiba, Tadashi Takayanagi, Kento Watanabe
Phys. Rev. Lett. 115 (2015) 261602, arXiv:1507.07555
- IPMU15-0120**
Revealing the jet substructure in a compressed spectrum
Chengcheng Han, Myeonghun Park
Phys. Rev. D 94 (2016) 011502, arXiv:1507.07729
- IPMU15-0121**
LHC τ -rich Tests of Lepton-specific 2HDM for $(g-2)_\mu$
Eung Jin Chun, Zhaofeng Kang, Michihisa Takeuchi, Yue-Lin Sming Tsai
JHEP 11 (2015) 99, arXiv:1507.08067
- IPMU15-0122**
Structural properties of non-spherical dark halos in Milky Way and Andromeda dwarf spheroidal galaxies
Kohei Hayashi, Masashi Chiba
Astrophys. J. 810 (2015) no.1, 22, arXiv:1507.07620
- IPMU15-0123**
Dynamics of Perturbations in Double Field Theory & Non-Relativistic String Theory
Sung Moon Ko, Charles Melby-Thompson, Rene Meyer, Jeong-Hyuck Park
JHEP 1512 (2015) 144, arXiv:1508.01121
- IPMU15-0124**
Renormalized Entanglement Entropy on Cylinder
Shamik Banerjee, Yuki Nakaguchi, Tatsuma Nishioka
JHEP 1603 (2016) 048, arXiv:1508.00979
- IPMU15-0125**
A 4D-2D equivalence for large- N Yang-Mills theory
Gokce Basar, Aleksey Cherman, Keith R. Dienes, David A. McGady
Phys. Rev. D 92 (2015) 105029, arXiv:1507.08666
- IPMU15-0126**
same as IPMU15-0125
- IPMU15-0127**
Seminatural Gauge Mediation from Product Group Unification
Hajime Fukuda, Hitoshi Murayama, Tsutomu T. Yanagida, Norimi Yokozaki
Phys. Rev. D 92 (2015) 055032, arXiv:1508.00445
- IPMU15-0128**
Adiabatic Invariance of Oscillons/l-balls
Masahiro Kawasaki, Fuminobu Takahashi, Naoyuki Takeda
Phys. Rev. D 92 (2015) 105024, arXiv:1508.01028
- IPMU15-0129**
Connecting Massive Galaxies to Dark Matter Halos in BOSS. I: Is Galaxy Color a Stochastic Process in High Mass Halos?
Shun Saito, Alexie Leauthaud, Andrew P. Hearin, Kevin Bundy, Andrew Zentner, Peter S. Behroozi, Beth A. Reid, Manodeep Sinha, Jean Coupon, Jeremy Tinker, Martin White Donald P. Schneider
arXiv:1509.00482
- IPMU15-0130**
Scale-dependent gravitational waves and non-gaussianity from a rolling axion
Ryo Namba, Marco Peloso, Maresuke Shiraishi, Lorenzo Sorbo, Caner Unal
JCAP 2016, 1, 41, arXiv:1509.07521
- IPMU15-0131**
Optical-Infrared Properties of Faint 1.3 mm Sources Detected with ALMA
Bunyo Hatsukade, Kouji Ohta, Kiyoto Yabe, Akifumi Seko, Ryu Makiya, Masayuki Akiyama
Astrophys. J. 810 (2015) 91, arXiv:1508.00644
- IPMU15-0132**
The Subaru FMOS Galaxy Redshift Survey (FastSound). III. The MZR and the FMR at $z \sim 1.4$
Kiyoto Yabe, Kouji Ohta, Masayuki Akiyama, Andrew Bunker, Gavin Dalton, Richard Ellis, Karl Glazebrook, Tomotsugu Goto, Masatoshi Imanishi, Fumihide Iwamuro, Hiroyuki Okada, Ikko Shimizu, Naruhisa Takato, Naoyuki Tamura, Motonari Tonegawa, Tomonori Totani
PASJ 67 (2015) 10216, arXiv:1508.01512
- IPMU15-0133**
On the principal Ricci curvatures of a Riemannian 3-manifold
Amir Babak Aazami, Charles M. Melby-Thompson
arXiv:1508.02667
- IPMU15-0134**
Electroweak interacting dark matter with a singlet scalar portal
Cheng-Wei Chiang, Eibun Senaha
Phys. Lett. B750 (2015) pp.147-153, arXiv:1508.02891
- IPMU15-0135**
Geometrical Constraint on Curvature with BAO experiments
Masahiro Takada, Olivier Dore
Phys. Rev. D 92 (2015) 123518, arXiv:1508.02469
- IPMU15-0136**
Can thermal inflation be consistent with baryogenesis in gauge-mediated SUSY breaking models?
Taku Hayakawa, Masahiro Kawasaki, Masaki Yamada
Phys. Rev. D 93 (2016) 063529, arXiv:1508.03409

- IPMU15-0137**
Gaugino mass in heavy sfermion scenario
Keisuke Harigaya
arXiv:1508.04811
- IPMU15-0138**
Frozen
Yuji Tachikawa
JHEP 1606 (2016) 128, arXiv:1508.06679
- IPMU15-0139**
Recursion Relations for Conformal Blocks
Joao Penedones, Emilio Trevisani, Masahito Yamazaki
JHEP 1609 (2016) 070, arXiv:1509.00428
- IPMU15-0140**
RG Flow and Thermodynamics of Causal Horizons in AdS
Shamik Banerjee
JHEP 1605 (2016) 126, arXiv:1509.08475
- IPMU15-0141**
Revisiting fermion mass and mixing fits in the minimal SUSY SO(10) GUT
Takeshi Fukuyama, Koji Ichikawa, Yukihiko Mimura
Phys. Rev. D 94 (2016) 075018, arXiv:1508.07078
- IPMU15-0142**
Weakly-Interacting Massive Particles in Non-supersymmetric SO(10) Grand Unified Models
Natsumi Nagata, Keith A. Olive, Jiaming Zheng
JHEP 1510 (2015) 193, arXiv:1509.00809
- IPMU15-0143**
Single-superfield Helical-phase Inflation
Sergei V. Ketov, Takahiro Terada
Phys. Lett. B 752 (2016) pp.108-112, arXiv:1509.00953
- IPMU15-0144**
Disappearing Inflaton Potential via Heavy Field Dynamics
Naoya Kitajima, Fuminobu Takahashi
JCAP 1602 (2016) no.02, 041, arXiv:1509.01729
- IPMU15-0145**
Weak Gravity Conjecture in AdS/CFT
Yu Nakayama, Yasunori Nomura
Phys. Rev. D92 (2015) no.12, 126006, arXiv:1509.01647
- IPMU15-0146**
Holographic Chern-Simons Defects
Mitsutoshi Fujita, Charles Melby-Thompson, Rene Meyer, Shigeki Sugimoto
JHEP 1606 (2016) 163, arXiv:1601.00525
- IPMU15-0147**
Search for short baseline ν_e disappearance with the T2K near detector
K. Abe et al. (T2K collaboration)
Phys. Rev. D 91 (2015) 051102, arXiv:1410.8811
- IPMU15-0148**
Neutrino Oscillation Physics Potential of the T2K Experiment
K. Abe et al. (T2K collaboration)
Prog. Theor. Exp. Phys. (2015) 043C01, arXiv:1409.7469
- IPMU15-0149**
Measurements of neutrino oscillation in appearance and disappearance channels by the T2K experiment with 6.6E20 protons on target
K. Abe et al. (T2K collaboration)
Phys. Rev. D 91 (2015) 072010, arXiv:1502.01550
- IPMU15-0150**
Measurement of the ν_μ CCQE cross section with ND280 at T2K
K. Abe et al. (T2K collaboration)
Phys. Rev. D 92 (2015) 112003, arXiv:1411.6264
- IPMU15-0151**
Measurement of the muon beam direction and muon flux for the T2K neutrino experiment
K. Suzuki et al. (T2K collaboration)
Prog. Theor. Exp. Phys. (2015) 053C01, arXiv:1412.0194
- IPMU15-0152**
Measurement of the electron neutrino charged-current interaction rate on water with the T2K ND280 π^0 detector
K. Abe et al. (T2K collaboration)
Phys. Rev. D 91 (2015) 112010, arXiv:1503.08815
- IPMU15-0153**
Measurement of the ν_μ charged current quasi-elastic cross-section on carbon with the T2K on-axis neutrino beam
K. Abe et al. (T2K collaboration)
Phys. Rev. D 91 (2015) 11200, arXiv:1503.07452
- IPMU15-0154**
Test of Lorentz invariance with atmospheric neutrinos
K. Abe et al. (Super-Kamiokande Collaboration)
Phys. Rev. D 91 (2015) 052003, arXiv:1410.4267
- IPMU15-0155**
Limits on sterile neutrino mixing using atmospheric neutrinos in Super-Kamiokande
K. Abe et al. (Super-Kamiokande Collaboration)
Phys. Rev. D 91 (2015) 052019, arXiv:1410.2008
- IPMU15-0156**
Search for Neutrinos from Annihilation of Captured Low-Mass Dark Matter Particles in the Sun by Super-Kamiokande
K. Choi et al. (Super-Kamiokande collaboration)
Phys. Rev. Lett. 114 (2015) 141301, arXiv:1503.04858
- IPMU15-0157**
Search for dinucleon decay into pions at Super-Kamiokande
J. Gustafson et al. (Super-Kamiokande Collaboration)
Phys. Rev. D 91 (2015) 072009, arXiv:1504.01041
- IPMU15-0158**
Perspective of monochromatic gamma-ray line detection with the High Energy cosmic-Radiation Detection (HERD) facility onboard China's Space Station
Xiaoyuan Huang, Anna S. Lamperstorfer, Yue-Lin Sming Tsai, Ming Xu, Qiang Yuan et al,
Astropart. Phys. 78 (2016) 35, arXiv:1509.02672
- IPMU15-0159**
Physics potential of a long-baseline neutrino oscillation experiment using a J-PARC neutrino beam and Hyper-Kamiokande
K. Abe et al. (Hyper-Kamiokande proto-collaboration)
Prog. Theor. Exp. Phys. (2015) 053C02, arXiv:1502.05199
- IPMU15-0160**
Revisiting Big-Bang Nucleosynthesis Constraints on Dark-Matter Annihilation
Masahiro Kawasaki, Kazunori Kohri, Takeo Moroi and Yoshitaro Takaesu
Phys. Lett. B751 (2015) 246-250, arXiv:1509.03665
- IPMU15-0161**
Leptonic Dirac CP Violation Predictions from Residual Discrete Symmetries
I. Girardi, S.T. Petcov, A.J. Stuart, A.V. Titov
Nuclear Physics B 902 (2016) pp. 1_57, arXiv:1509.02502
- IPMU15-0162**
Matter coupling in partially constrained vielbein formulation of massive gravity
Antonio De Felice, A. Emir Gumrukcuoglu, Lavinia Heisenberg, Shinji Mukohyama
JCAP 1601 (2016) 003, arXiv:1509.05978
- IPMU15-0163**
Maximal semigroup symmetry and discrete Riesz transforms
Toshiyuki Kobayashi, Andreas Nilsson, Fumihiro Sato
J. Aust. Math. Soc 100 (2016) pp. 216-240,
- IPMU15-0164**
Bethe's Quantum Numbers And Rigged Configurations
Anatol N. Kirillov and Reiho Sakamoto
Nuclear Physics B 905 (2016) pp. 359-372, arXiv:1509.02305
- IPMU15-0165**
Rigged Configurations and Catalan, Stretched Parabolic Kostka Numbers and Polynomials: Polynomiality, Unimodality and Log-concavity
Anatol N. Kirillov
arXiv:1505.01542
- IPMU15-0166**
Construction of double Grothendieck polynomials of classical types using Id-Coxeter algebras
Anatol N. Kirillov and Hiroshi Naruse
arXiv:1504.08089
- IPMU15-0167**
On some quadratic algebras I + 1/2
Anatol N. Kirillov
SIGMA 12 (2016) 002, arXiv:1502.00426
- IPMU15-0168**
Notes on Schubert, Grothendieck and Key polynomials
Anatol N. Kirillov
SIGMA 12 (2016) 034, arXiv:1501.07337
- IPMU15-0169**
RG Flow and Thermodynamics of Causal Horizons in Higher-Derivative AdS Gravity
Shamik Banerjee, Arpan Bhattacharya
JHEP 1605 (2016) 126, arXiv:1509.08475
- IPMU15-0170**
On Double Schubert and Grothendieck polynomials for Classical Groups
Anatol N. Kirillov
arXiv:1504.01469
- IPMU15-0171**
Taming Supersymmetric Defects in 3d-3d Correspondence
Dongmin Gang, Nakwoo Kim, Mauricio Romo, Masahito Yamazaki
J. Phys. A: Math. Theor. 49 (2016) 30LT02, arXiv:1510.03884
- IPMU15-0172**
Effective Field Theory of Integrating out Sfermions in the MSSM: Complete One-Loop Analysis
Ran Huo
arXiv:1509.05942
- IPMU15-0173**
Mitsutoshi Fujita, Rene Meyer, Masaki Tezuka, "TBA"
- IPMU15-0174**
Beyond the CMSSM without an Accelerator: Proton Decay and Direct Dark Matter Detection
John Ellis, Jason L. Evans, Feng Luo, Natsumi Nagata, Keith A. Olive, Pearl Sandick
Eur. Phys. J. C 76 (2016) 8, arXiv:1509.08838
- IPMU15-0175**
Reheating of the Universe as holographic thermalization
Shinsuke Kawai, Yu Nakayama
Phys. Lett. B759 (2016) pp. 546-549, arXiv:1509.04661
- IPMU15-0176**
Aspects of Defects in 3d-3d Correspondence
Dongmin Gang, Nakwoo Kim, Mauricio Romo, Masahito Yamazaki
JHEP 1610 (2016) 062, arXiv:1510.05011
- IPMU15-0177**
Starobinsky-like two-field inflation
S. Kaneda, S. V. Ketov
Eur. Phys. J. C76 (2016) no.1, 26, arXiv:1510.03524
- IPMU15-0178**
Cosmological Problems of the String Axion Alleviated by High Scale SUSY of $m_{3/2} \approx 10$ -100TeV
Masahiro Kawasaki, Tsutomu T. Yanagida, Norimi Yokozaki
Phys. Lett. B753 (2016) pp.389_394, arXiv: 1510.04171
- IPMU15-0179**
Toward verification of electroweak baryogenesis by electric dipole moments
K.Fuyuto, J.Hisano and E.Senaha
Phys. Lett. B755 (2016) pp. 491-497, arXiv:1510.04485
- IPMU15-0180**
Revisiting R-invariant Direct Gauge Mediation
Cheng-Wei Chiang, Keisuke Harigaya, Masahiro Ibe, Tsutomu T. Yanagida
JHEP 1603 (2016) 145, arXiv:1510.04047
- IPMU15-0181**
Level crossing between the QCD axion and an axionlike particle
Ryuji Daido, Naoya Kitajima, Fuminobu Takahashi
Phys. Rev. D, 93 (2015) 075027, arXiv:1510.06675
- IPMU15-0182**
Dark Matter and Gauge Coupling Unification in Non-SUSY SO(10) Grand Unified Models
Natsumi Nagata
PoS PLANCK2015 (2015) 088, arXiv:1510.03509
- IPMU15-0183**
Prospects for Higgs- and Z-resonant Neutralino Dark Matter
Koichi Hamaguchi, Kazuya Ishikawa
Phys. Rev. D 93 (2016) 055009, arXiv:1510.05378
- IPMU15-0184**
Reflection on Conformal Spectra
Hyungrok Kim, Petr Kravchuk, and Hiroo Ooguri
JHEP 1604 (2016) 184, arXiv:1510.08772
- IPMU15-0185**
Cosmologically safe QCD axion without fine-tuning
Masaki Yamada, Tsutomu T. Yanagida, Kazuya Yonekura
Phys. Rev. Lett. 116 (2016) 051801, arXiv:1510.06504
- IPMU15-0186**
ATLAS on-Z Excess via gluino-Higgsino-singlino decay chains in the NMSSM
Keisuke Harigaya, Masahiro Ibe, Tepei Kitahara
JHEP 1601 (2016) 030, arXiv:1510.07691
- IPMU15-0187**
Prime Focus Spectrograph for the Subaru telescope: massively multiplexed optical and near-infrared fiber spectrograph
Hajime Sugai, Naoyuki Tamura, Hiroshi Karoji et al.
JATIS 1 (2015) 035001, arXiv:1507.00725
- IPMU15-0188**
Spontaneous Baryogenesis from Asymmetric Inflaton
Fuminobu Takahashi, Masaki Yamada
Phys. Lett. B756 (2016) pp. 216-220, arXiv:1510.07822
- IPMU15-0189**
Affleck-Dine leptogenesis and its backreaction to inflaton dynamics
Masaki Yamada
Phys. Lett. B754 (2016) pp. 208-213, arXiv:1510.08514

- IPMU15-0190**
The two-field regime of natural inflation
Ana Achucarro, Vicente Atal, Masahiro Kawasaki and Fuminobu Takahashi
JCAP 1512 (2015) no.12, 044, arXiv:1510.08775
- IPMU15-0191**
Separate Universe Consistency Relation and Calibration of Halo Bias
Yin Li, Wayne Hu, Masahiro Takada
Phys. Rev. D 93 (2016) 063507, arXiv:1511.01454
- IPMU15-0192**
Primordial trispectra and CMB spectral distortions
Nicola Bartolo, Michele Liguori, Maresuke Shiraishi
JCAP 03 (2016) 029, arXiv:1511.01474
- IPMU15-0193**
Enhanced Higgs Mass in Compact Supersymmetry
Ryuichiro Kitano, Kohsaku Tobioka, Hitoshi Murayama
JHEP 1604 (2016) 025, arXiv:1511.04081
- IPMU15-0194**
Suppressing the QCD Axion Abundance by Hidden Monopoles
Masahiro Kawasaki, Fuminobu Takahashi, Masaki Yamada
Phys. Lett. B753 (2016) pp. 677-681, arXiv:1511.05030
- IPMU15-0195**
Affleck-Dine baryogenesis just after inflation
Masaki Yamada
Phys. Rev. D93 (2016) no.8, 083516, arXiv:1511.05974
- IPMU15-0196**
Trail of the Higgs in the primordial spectrum
Jinn-Ouk Gong, Chengcheng Han, Shi Pi
arXiv:1511.07604
- IPMU15-0197**
Double-Trace Deformations and Entanglement Entropy in AdS
Taiki Miyagawa, Noburo Shiba, Tadashi Takayanagi
Fortsch. Phys. 64 (2016) pp. 92-105, arXiv:1511.07194
- IPMU15-0198**
Differential symmetry breaking operators. I. General theory and F-method
Toshiyuki Kobayashi, Michael Pevzner
Selecta Math 22 (2016) pp. 801-845, arXiv:1301.2111
- IPMU15-0199**
Differential symmetry breaking operators. II. Rankin-Cohen operators for symmetric pairs
Toshiyuki Kobayashi, Michael Pevzner
Selecta Math 22 (2016) pp. 847-911, arXiv:1301.2111
- IPMU15-0200**
Modeling the reconstructed BAO in Fourier space
Hee-Jong Seo, Florian Beutler, Ashley J. Ross, Shun Saito
Mon. Not. Roy. Astron. Soc. 460 (2016) no.3, pp. 2453-2471, arXiv:1511.00663
- IPMU15-0201**
Fourier-Mukai Transforms and Bridgeland Stability Conditions on Abelian Threefolds II
Antony Maciocia, Dulip Piyaratne
Inter. J. Math. 27 (2016) 1, arXiv:1310.0299
- IPMU15-0202**
Acyclicity of non-linearizable line bundles on fake projective planes
Sergey Galkin, Ilya Karzhemanov, Evgeny Shinder
arXiv:1602.06107
- IPMU15-0203**
G2HDM : Gauged Two Higgs Doublet Model
Wei-Chih Huang, Yue-Lin Sming Tsai, Tzu-Chiang Yuan
JHEP 04 (2016) 019, arXiv:1512.00229
- IPMU15-0204**
Phenomenology in minimal theory of massive gravity
Antonio De Felice, Shinji Mukohyama
JCAP 1604 (2016) 028, arXiv:1512.04008
- IPMU15-0205**
Can massive primordial black holes be produced in mild waterfall hybrid inflation?
Masahiro Kawasaki, Yuichiro Tada
JCAP 1608 (2016) 041, arXiv:1512.03515
- IPMU15-0206**
Noncommutative deformations and flops
Will Donovan, Michael Wemyss
Duke Math. J. 165, no. 8 (2016), pp. 1397-1474, arXiv:1309.0698
- IPMU15-0207**
2, 84, 30, 993, 560, 15456, 11962, 261485, ...: Higher dimension operators in the SM EFT
Brian Henning, Xiaochuan Lu, Tom Melia, Hitoshi Murayama
arXiv:1512.03433
- IPMU15-0208**
Monopole operators from the 4 - ϵ expansion
Shai M. Chester, Mark Mezei, Silviu S. Pufu, Itamar Yaakov
arXiv:1511.07108
- IPMU15-0209**
Apparent unitarity violation in top quark's mass off-shell region from a new physics at high energy colliders
Chengcheng Han, Mihoko M. Nojiri, Myeonghun Park
Phys. Lett. B760 (2016) pp. 775-779, arXiv:1512.04855
- IPMU15-0210**
High-scale SUSY from an R-invariant New Inflation in the Landscape
Masahiro Kawasaki, Masaki Yamada, Tsutomu T. Yanagida, Norimi Yokozaki
Phys. Rev. D 93 (2016) 055022, arXiv:1512.04259
- IPMU15-0211**
Gravitational scalar-tensor theory
Atsushi Naruko, Daisuke Yoshida, Shinji Mukohyama
Class. Quant. Grav. 33 (2016) no.9, 09LT01, arXiv:1512.06977
- IPMU15-0212**
The QCD Axion from Aligned Axions and Diphoton Excess
Tetsutaro Higaki, Kwang Sik Jeong, Naoya Kitajima, Fuminobu Takahashi
Phys. Lett. B755 (2016) pp. 13-16, arXiv:1512.05295
- IPMU15-0213**
The Minimal Scalar-Stealth Top Interpretation of the Diphoton Excess
Wei Chao, Ran Huo, Jiang-Hao Yu
arXiv:1512.05738
- IPMU15-0214**
The diphoton resonance as a gravity mediator of dark matter
Chengcheng Han, Hyun Min Lee, Myeonghun Park, Veronica San
Phys. Lett. B755 (2016) pp. 371-379, arXiv:1512.06376
- IPMU15-0215**
The MV formalism for IBL_∞ and BV_∞ -algebras
Martin Markl, Alexander A. Voronov
arXiv:1511.01591
- IPMU15-0216**
Categorification of Dijkgraaf-Witten Theory
Amit Sharma, Alexander A. Voronov
arXiv:1511.00295
- IPMU15-0217**
Interpreting the 750 GeV diphoton excess by the singlet extension of the Manohar-Wise Model
Junjie Cao, Chengcheng Han, Liangliang Shang, Wei Su, Jin Min Yang, Yang Zhang
Phys. Lett. B755 (2016) pp. 456-463, arXiv:1512.06728
- IPMU15-0218**
SIMP Spectroscopy
Yonit Hochberg, Eric Kuflik, Hitoshi Murayama, Jay G. Wacker
JHEP 1605 (2016) 090, arXiv:1512.07917
- IPMU15-0219**
Gauged Two Higgs Doublet Model confronts for the LHC 750 GeV di-photon anomaly
Wei-Chih Huang, Yue-Lin Sming Tsai, Tzu-Chiang Yuan
Nucl. Phys. B 909 (2016) pp. 122-134, arXiv:1512.07268
- IPMU15-0220**
Fourier-Mukai Transforms and Stability Conditions on Abelian Varieties
Dulip Piyaratne
arXiv:1512.02034
- IPMU15-0221**
On p-form theories with gauge invariant second order field equations
Cedric Deffayet, Shinji Mukohyama, Vishagan Sivanesan
Phys. Rev. D 93 (2016) 085027, arXiv:1601.01287
- IPMU15-0222**
New Quasidilaton theory in Partially Constrained Vielbein Formalism
Antonio De Felice, A. Emir Gumrukcuoglu, Lavinia Heisenberg, Shinji Mukohyama, Norihiro Tanahashi
JCAP 1605 (2016) 061, arXiv:1603.02165
- IPMU15-0223**
CMB constraint on dark matter annihilation after Planck 2015
Masahiro Kawasaki, Kazunori Nakayama and Toyokazu Sekiguchi
Phys. Lett. B756 (2016) pp.212-215, arXiv:1512.08015
- IPMU15-0224**
Spectral sum rules for confining large N theories
Aleksey Cherman, David A. McGady, Masahito Yamazaki
JHEP 06 (2016) 095, arXiv:1512.09119
- IPMU15-0225**
Revisiting Scalar Quark Hidden Sector in Light of 750-GeV Diphoton Resonance
Cheng-Wei Chiang, Masahiro Ibe, Tsutomu T. Yanagida
JHEP 1605 (2016) 084, arXiv:1512.08895
- IPMU16-0001**
A program for branching problems in the representation theory of real reductive groups
Toshiyuki Kobayashi
Progr. Math. 312 (2015) pp. 277-322, arXiv:1509.08861
- IPMU16-0002**
Intersection numbers on the relative Hilbert schemes of points on surfaces
Amin Gholampour, Artan Sheshmani
To appear in Asian J. Math (2016), arXiv:1504.01107
- IPMU16-0003**
Cosmology with a Heavy Polonyi Field
Keisuke Harigaya, Taku Hayakawa, Masahiro Kawasaki, Masaki Yamada
JCAP 1606 (2016) 015, arXiv:1601.02140
- IPMU16-0004**
Wall-crossing and invariants of higher rank Joyce-Song stable pairs
Artan Sheshmani
arXiv:1101.2252
- IPMU16-0005**
Comments on Determinant Formulas for General CFTs
Masahito Yamazaki
JHEP 10 (2016) 035, arXiv:1601.04072
- IPMU16-0006**
A search for minimal 4d N=1 SCFT
Dan Xie, Kazuya Yonekura
Phys. Rev. Lett. 117 (2016) 011604, arXiv:1602.04817
- IPMU16-0007**
Occam's Razor in Quark Mass Matrices
Morimitsu Tanimoto, Tsutomu T. Yanagida,
PTEP 2016 (2016) no.4, 043B03, arXiv:1601.04459
- IPMU16-0008**
Bootstrapping critical Ising model on three-dimensional real projective space
Yu Nakayama
Phys. Rev. Lett. 116 (2016) 141602, arXiv:1601.06851
- IPMU16-0009**
On 4d rank-1 N=3 superconformal field theories
Takahiro Nishinaka, Yuji Tachikawa
JHEP 1609 (2016) 116, arXiv:1602.01503
- IPMU16-0010**
Vertical D4-D2-D0 bound states on K3 fibrations and modularity
Vincent Bouchard, Thomas Creutzig, Dui-liu Emanuel Diaconescu, Charles Doran, Callum Quigley, Artan Sheshmani
arXiv:1601.04030
- IPMU16-0011**
Gauging and Decoupling in 3d N=2 Dualities
Jeongseog Lee, Masahito Yamazaki
JHEP 06 (2016) 077, arXiv:1603.02283
- IPMU16-0012**
Fate of Electroweak Vacuum during Preheating
Yohei Ema, Kyohei Mukaida, Kazunori Nakayama,
arXiv:1602.00483
- IPMU16-0013**
Stability conditions on CY_N categories associated to A_n -quivers and period maps
Akishi Ikeda
arXiv:1405.5492
- IPMU16-0014**
Why three generations?
Masahiro Ibe, Alexander Kusenko, Tsutomu T. Yanagida
Phys. Lett. B758 (2016) pp. 365-369, arXiv:1602.03003
- IPMU16-0015**
Diphoton Excess and Running Couplings
Kyu Jung Bae, Motoi Endo, Koichi Hamaguchi, Takeo Moroi
Phys. Lett. B757 (2016) pp. 493-500, arXiv:1602.03653
- IPMU16-0016**
Implications of the 750 GeV Diphoton Excess in Gaugino Mediation
Chengcheng Han, Tsutomu Yanagida, Norimi Yoshizaki
Phys. Rev. D 93 (2016) 055025, arXiv:1602.04204
- IPMU16-0017**
Pre-reheating Magnetogenesis in the Kinetic Coupling Model
Tomohiro Fujita, Ryo Namba
Phys. Rev. D 94 (2016) 043523, arXiv:1602.05673
- IPMU16-0018**
Ghost inflation and de Sitter entropy",
Sadra Jazayeri, Shinji Mukohyama, Rio Saitou, Yota Watanabe
JCAP 08 (2016) 002, arXiv:1602.06511

IPMU16-0019
 Supergeometry in Mathematics and Physics
 Mikhail Kapranov,
 arXiv:1512.07042

IPMU16-0020
 Perverse sheaves and graphs on surfaces
 Mikhail Kapranov, Vadim Schechtman
 arXiv:1601.01789

IPMU16-0021
 Perverse sheaves on real hyperplane arrangements
 Mikhail Kapranov, Vadim Schechtman
 Ann. of Math. 183 (2016), pp. 617-679,, arXiv:1403.5800

IPMU16-0022
 S-folds and 4d N=3 superconformal field theories
 Ofer Aharony, Yuji Tachikawa
 JHEP 06 (2016) 044, arXiv:1602.08638

IPMU16-0023
 750 GeV diphoton resonance in a visible heavy QCD axion model
 Cheng-Wei Chiang, Hajime Fukuda, Masahiro Ibe, Tsutomu T. Yanagida
 Phys. Rev. D 93 (2016) 095016, arXiv:1602.07909

IPMU16-0024
 Heavy Fermion Bound States for Diphoton Excess at 750GeV ~
 Collider and Cosmological Constraints ~
 Chengcheng Han, Koji Ichikawa, Shigeki Matsumoto, Mihoko M. Nojirimm Michihisa Takeuchi
 JHEP 04 (2016) 159, arXiv:1602.08100

IPMU16-0025
 Conformal Bootstrap Dashing Hopes of Emergent Symmetry
 Yu Nakayama, Tomoki Ohtsuki,
 Phys. Rev. Lett. 117 (2016) 131601, arXiv:1602.07295

IPMU16-0026
 Threshold Corrections to Dimension-six Proton Decay Operators in
 Non-minimal SUSY SU(5) GUTs
 Borut Bajc, Junji Hisano, Takumi Kuwahara and Yuji Omura
 Nucl. Phys. B910 (2016) pp. 1-22, arXiv:1603.03568

IPMU16-0027
 Multicolor light curves simulations of Population III core-collapse
 supernovae: from shock breakout to ^{56}Co decay
 Alexey Tolstov, Ken'ichi Nomoto, Nozomu Tominaga, Miho Ishigaki,
 Sergey Blinnikov, Tomoharu Suzuki
 Astrophys. J. 821 (2016) no.2, 124, arXiv:1512.08330

IPMU16-0028
 Violation of statistical isotropy and homogeneity in the 21-cm
 power spectrum
 Maresuke Shiraishi, Julian B. Munoz, Marc Kamionkowski, Alvise
 Raccanelli
 Phys. Rev. D 93 (2016) 103506, arXiv:1603.01206

IPMU16-0029
 W-algebra constraints and topological recursion for A_N singularity
 Todor Milanov, Danilo Lewanski
 arXiv:1603.00073

IPMU16-0030
 Quality of the Peccei-Quinn symmetry in the Aligned QCD Axion
 and Cosmological Implications
 Tetsutaro Higaki, Kwang Sik Jeong, Naoya Kitajima, Fuminobu
 Takahashi
 JHEP 06 (2016) 150, arXiv:1603.02090

IPMU16-0031
 Tannaka duality over ring spectra
 James Wallbridge
 arXiv:1204.5787

IPMU16-0032
 Cosmology in generalized Proca theories
 Antonio De Felice, Lavinia Heisenberg, Ryotaro Kase, Shinji
 Mukohyama, Shinji Tsujikawa, Ying-li Zhang
 JCAP 06 (2016) 048, arXiv:1603.05806

IPMU16-0033
 Viable Chaotic Inflation as a Source of Neutrino Masses and
 Leptogenesis
 Kazunori Nakayama, Fuminobu Takahashi, Tsutomu T. Yanagida
 Phys. Lett. B 757 (2016) pp. 32-38, arXiv:1601.00192

IPMU16-0034
 Gauge interactions and topological phases of matter
 Yuji Tachikawa, Kazuya Yonekura,
 arXiv:1604.06184

IPMU16-0035
 Determinant Formula for Parabolic Verma Modules of Lie
 Superalgebras
 Yoshiki Oshima, Masahito Yamazaki
 arXiv:1603.06705

IPMU16-0036
 Weighted Euler characteristic of the moduli space of higher rank
 Joyce-Song pairs
 Artan Sheshmani
 To appear in European Journal of Math (2016), arXiv:1107.0295

IPMU16-0037
 LikeDM : likelihood calculator of dark matter detection
 Xiaoyuan Huang, Yue-Lin Sming Tsai , Qiang Yuan
 arXiv:1603.07119

IPMU16-0038
 Renormalization group improved Higgs inflation with a running
 kinetic term
 Fuminobu Takahashi, Ryo Takahashi
 Phys. Lett. B760 (2016) pp. 329-334, arXiv:1603.07601

IPMU16-0039
 WIMP Dark Matter in Well-Tempered Regime: A case study on
 Singlet-Doublets Fermionic WIMP
 Shankha Banerjee, Shigeki Matsumoto, Kyohei Mukaida, Yue-Lin
 Sming Tsai
 arXiv:1603.07387

IPMU16-0040
 Wilson punctured network defects in 2D q-deformed Yang-Mills
 theory
 Noriaki Watanabe
 arXiv:1603.02939

IPMU16-0041
 Dark matter annihilation and decay from non-spherical dark halos
 in the Galactic dwarf satellites
 Kohei Hayashi, Koji Ichikawa, Shigeki Matsumoto, Masahiro Ibe,
 Miho N. Ishigaki and Hajime Sugai
 Mon. Not. Roy. Astron. Soc. 461 (2016) no.3, pp. 2914-2928,
 arXiv:1603.08046

IPMU16-0042
 One-loop Matching and Running with Covariant Derivative
 Expansion
 Brian Henning, Xiaochuan Lu, Hitoshi Murayama
 arXiv:1604.01019

12 CONFERENCE PRESENTATIONS AND SEMINAR TALKS

Seminar talks given at the Kavli IPMU are not included. For seminar talks given at the Kavli IPMU, see Section 8.

FY2015

CAA colloquium

(2015.04.09–Shanghai Jiao Tong University)
Naoyuki Tamura
Subaru Prime Focus Spectrograph: Project & instrument overview

CAA colloquium

(2015.04.09–Shanghai Jiao Tong University)
Masahiro Takada
Subaru Prime Focus Spectrograph: Science

Mirror Symmetry, Hodge Theory and Differential Equations

(2015.04.18 - 2015.04.26–Oberwolfach, Germany)
Todor Milanov
Vertex algebras in singularity and Gromov–Witten theory

University of Minnesota High Energy Theory Lunchtime Seminar

(2015.04.23–University of Minnesota)
Natsumi Nagata
Direct search of electroweak-charged dark matter

PHENO2015

(2015.05.04 - 2015.05.06–U. Pittsburgh)
Shigeki Matsumoto
Physics & Perspectives of the ILC

Phenomenology 2015 Symposium

(2015.05.04 - 2015.05.06–University of Pittsburgh)
Natsumi Nagata
QCD Effects on Direct Detection of Wino Dark Matter

ISAS seminar

(2015.05.08–ISAS, Sagami-hara, Kanagawa)
Masahiro Takada
Detection of universality of dark matter profile from Subaru weak lensing measurements of 50 massive clusters

Algebra seminar at UOttawa

(2015.05.09–Ottawa (Canada))
Ilya Karzhemanov
On endomorphisms of hypersurfaces

AGU Workshop on Geometry and Representation Theory

(2015.05.09–Aoyamagakuin University)
Yoshihiko Oshima
On the continuations of Borel-de Siebenthal discrete series representations

PPP 11

(2015.05.12 - 2015.05.15–Tamkang U.)
Shigeki Matsumoto
Dark matter physics at the ILC

Birational geometry seminar at PUC

(2015.05.15–Santiago (Chile))
Ilya Karzhemanov
On uniform rationality

Komaba Algebraic Geometry seminar

(2015.05.18–Graduate School of Math. Sci., University of Tokyo)
Will Donovan
Twists and braids for general 3-fold flops

The Moab Topology Conference 2015

(2015.05.18 - 2015.05.21–Utah State University, Moab, USA)
Tirasan Khandhawit
Stable homotopy invariants for 4-manifolds with positive scalar curvature

Workshop on Current Challenges in Cosmology: Inflation and the Origin of the CMB Anomalies

(2015.05.18 - 2015.05.22–Cali, Colombia)
Maresuke Shiraishi
Search for Primordial Symmetry-Breakings in CMB (invited talk)

Subaru Seminar

(2015.05.19–Subaru Hilo Base Facility, Hawaii)
Andreas Schulze
A demographic view on the active black hole growth history out to $z=2$

PLANCK 2015

(2015.05.25 - 2015.05.29–Ioannina, Greece)
Natsumi Nagata
Dark Matter and Gauge Coupling Unification in Non-SUSY SO(10) Grand Unified Models

Geometric Invariant s and Spectral Curves

(2015.05.31 - 2015.06.07–Lorentz Center, Leiden, Netherlands)
Todor Milanov
The Eynard–Orantin recursion for simple singularities

Harmonic Analysis, Group Representations, Automorphic Forms and Invariant Theory: in honour of Roger Howe celebrating his 70th birthday.

(2015.06.01 - 2015.06.05–Yale University)
Toshiyuki Kobayashi
Analysis on Non-Riemannian Locally Symmetric Spaces-An Application of Invariant Theory

String Phenomenology 2015

(2015.06.08 - 2015.06.12–IFT, Madrid, Spain)
Taizan Watari
Statistics of Effective Theories in F-theory Flux Compactifications

CosKASI

(2015.06.09 - 2015.06.11–KASI, Daejeon, Korea)
Shigeki Matsumoto
Dark Matter Search at the ILC

ISAS seminar

(2015.06.11–ISAS, Sagami-hara, Kanagawa)
Masahiro Takada
Evidence for Halo Assembly Bias in Massive Clusters

The 11th International Workshop: Lie Theory and Its Applications in Physics (LT-11)

(2015.06.15 - 2015.06.21–Varna)
Toshiyuki Kobayashi
Global Geometry and Analysis on Locally Symmetric Spaces with Indefinite-metric

Summer School: “New Era of the Cosmic Distance Scale”

(2015.06.29 - 2015.07.03–U. Tokyo)
Masahiro Takada
Baryon Acoustic Oscillation (Invited lecture)

Analytic Representation Theory of Lie Groups

(2015.07.01 - 2015.07.04–Kavli IPMU, the University of Tokyo, Japan)
Toshiyuki Kobayashi
Analysis of Minimal Representations-Geometric Quantization of Minimal Nilpotent Orbits. (2 lectures)

Analytic representation theory of Lie groups

(2015.07.01 - 2015.07.04–Kavli IPMU)
Yoshihiko Oshima
Restriction of most degenerate representations of $O(1,n)$ for symmetric pairs

Geometric algebra

(2015.07.06 - 2015.07.10–Fields Institute, Toronto)
Will Donovan
Contraction algebras and braiding of flops

Guillermo Haro Workshop 2015

(2015.07.06 - 2015.07.24–INAOE, Puebla, Mexico)
Andreas Schulze
The cosmic growth of the active black hole population

Colloquium to celebrate the 65th Birthday of Wilfried Buchmüller

(2015.07.09 - 2015.07.10–DESY Hamburg)
Tutomu Yanagida
33 Years After the Quasi Nambu-Goldstone Fermion Hypothesis

ILC Summer Camp

(2015.07.18 - 2015.07.21–Ikaho, Gunma)
Shigeki Matsumoto
Physics significance of the ILC

Theoretical and Observational Progress on Large-scale Structure of the Universe

(2015.07.20 - 2015.07.24–ESO, Garching, Germany)
Shun Saito
Subhalo abundance matching to model galaxy-halo connection in the Baryon Oscillation Spectroscopic Survey

The 14th Regular Meeting of New Higgs Working Group

(2015.08.04 - 2015.08.05–University of Toyama)
Natsumi Nagata
Probing gaugino coannihilation with displaced vertex searches

From Inflation to Galaxies: a workshop in honour of Sabino Matarrese

(2015.08.31 - 2015.09.03–Castiglione, Italy)
Maresuke Shiraishi
Primordial symmetry breakings and new CMB observables

Subaru-Keck Synergy Workshop

(2015.09.01 - 2015.09.02–Tohoku University)
Naoyuki Tamura
The PFS (Prime Focus Spectrograph) Project

Subaru-Keck Synergy Workshop

(2015.09.01 - 2015.09.02–Tohoku University)
Masahiro Takada
A pilot survey of transients in M31 - in preparation of LSST - (invited)

Derived Categories and Moduli Spaces

(2015.09.08 - 2015.09.10–The University of Stavanger, Stavanger, Norway)
Dulip Piyaratne
Fourier-Mukai theory and stability conditions on abelian threefolds

Annual meeting of astronomical society of Japan

(2015.09.09 - 2015.09.11–Konan University)
Naoyuki Tamura
Prime Focus Spectrograph: Overview and Progress Updates

Annual meeting of the Astronomical Society of Japan

(2015.09.09 - 2015.09.11–Konan University)
Shun Saito
Connecting dark matter halos with massive galaxies in the BOSS survey

The Stavanger Algebraic Geometry Seminar

(2015.09.11–The University of Stavanger, Stavanger, Norway)
Dulip Piyaratne
Moduli of Bridgeland semistable objects and Fourier-Mukai transforms

PACIFIC 2015 UCLA

(2015.09.12 - 2015.09.19–MOOREA)
Tutomu Yanagida
Quarks and Leptons as Quasi Nambu Goldstone Fermion

Categorical and Analytic invariants in Algebraic Geometry 1

(2015.09.13 - 2015.09.19–Steklov Institute, Moscow, Russia)
Todor Milanov
Vertex algebras and Gromov–Witten invariants

Symposium by group of optical and infrared astronomy in Japan

(2015.09.14 - 2015.09.16–NAOJ, Mitaka)
Naoyuki Tamura
Prime Focus Spectrograph Progress Updates

PPP2015

(2015.09.14 - 2015.09.18–YITP, Kyoto U.)
Shigeki Matsumoto
Dark matter interpretation of the AMS-02 2015 result

Demographics and environment of AGN from multi-wavelength surveys

(2015.09.21 - 2015.09.24–Chania, Greece)
Andreas Schulze
The evolution of the mass functions of active SMBHs and their host galaxies out to z

Gromov–Witten invariants and integrable systems

(2015.09.25 - 2015.09.27–Tsinghua University, Beijing, China)
Todor Milanov
Vertex algebras and Gromov–Witten invariants

JPS conference (Symposium)

(2015.09.25 - 2015.09.28–Osaka city U.)
Shigeki Matsumoto
Physics of ILC (Theory)

Hong Kong Geometry Colloquium

(2015.10.10–Hong Kong University of Science and Technology)
Todor Milanov
Topological recursion and Givental–Teleman’s higher genus reconstruction

Analyse, Geometry et Algèbre

(2015.10.15–Institut Elie Cartan de Lorraine)
Toshiyuki Kobayashi
Analysis on Non-Riemannian Locally Symmetric Spaces-An Application of Invariant Theory

Kinosaki Symposium on Algebraic Geometry 2015

(2015.10.19 - 2015.10.23–Kinosaki International Arts Center)
Dulip Piyaratne
Fourier-Mukai transforms and stability conditions

Workshop: Branching Laws, Quantum Ergodicity, Wave Front Sets & Resonances

(2015.10.23 - 2015.10.24–Reims, France)
Toshiyuki Kobayashi
Analysis on Non-Riemannian Locally Symmetric Spaces-An Application of Branching Laws, I, II

Moduli spaces in geometry

(2015.10.26 - 2015.10.31–Luminy, France)
Artan Sheshmani
On the proof of S-duality modularity conjecture on quintic threefolds

Japanese-European Symposium on Symplectic Varieties and Moduli Spaces

(2015.10.26 - 2015.10.30–Kyoto University)
Dulip Piyaratne
Fourier-Mukai theory and stability conditions on abelian varieties

Astrophysics Seminar

(2015.10.28–Ohio University)
Shun Saito
Evolution of Massive Galaxies at $z \sim 0.5$ in the Baryon Oscillation Spectroscopic Survey (invited)

Quantization of Spectral Curves

(2015.11.01 - 2015.11.04–OCAMI(Osaka City University Advanced Mathematical Institute))
Todor Milanov
Lectures on Topological Recursion in Singularity Theory

Seminar

(2015.11.02–Oxford University)
Amir Babak Aazami
On the principal Ricci curvatures of a Riemannian 3-manifold

Seminar

(2015.11.06–University of Leuven, Belgium)
Amir Babak Aazami
Methods of Lorentzian geometry in Riemannian and Symplectic geometry

Developments in String Theory and Quantum Field Theory

(2015.11.09 - 2015.11.13–Yukawa Institute for Theoretical Physics, Kyoto University, Kyoto, Japan)
Dongmin Gang
Supersymmetric defects in 3d-3d correspondence

Seminar

(2015.11.11–University of Murcia, Spain)
Amir Babak Aazami
On the principal Ricci curvatures of a Riemannian 3-manifold

Tsukuba Uchu Forum

(2015.11.11–Tsukuba University)
Andreas Schulze
The evolution of the mass functions of active supermassive black holes and their host galaxies out to $z \sim 2$

Categorical and analytic invariants in algebraic geometry II

(2015.11.16 - 2015.11.20–Kavli IPMU)
Will Donovan
Twists and braids for general 3-fold flops

Nulnt 2015

(2015.11.16 - 2015.11.21–Osaka University Suita Campus)
Christophe Bronner
Generators for the SIS/DIS region

Particle Cosmology and beyond 2015

(2015.11.16 - 2015.11.19–Kanazawa)
Shigeki Matsumoto
Towards testing the WIMP paradigm

Symposium on Representation Theory 2015

(2015.11.17 - 2015.11.20–Izu-Nagaoka, Shizuoka, Japan)
Toshiyuki Kobayashi
Analysis on Non-Riemannian Locally Symmetric Spaces-An Application of Invariant Theory

Workshop of Observational Cosmology

(2015.11.18 - 2015.11.20–Kyoto University)
Masahiro Takada
Halo bias, super-survey effects and cosmology (invited)

NAOJ Seminar

(2015.11.20–NAOJ, Mitaka)
Andreas Schulze
The evolution of the mass functions of active SMBHs and their host galaxies out to $z \sim 2$

Colloquium in The University of Melbourne

(2015.11.24–University of Melbourne)
Tsutomu Yanagida

First stars, first galaxies conference 2015

(2015.11.30 - 2015.12.02–Kusatsu)
Miho N. Ishigaki
Elemental abundances of extremely metal-poor stars as a probe of the first stars (invited)

Workshop for Unification and Development of the Neutrino Science Frontier (2015)

(2015.12.01 - 2015.12.03–Yugawara, Kanagawa)
Masahiro Takada
Why does the Universe speed up? - Exhausted study and challenge for the future - (invited talk)

Physics Colloquium (Tohoku U.)

(2015.12.05–Tohoku U.)
Shigeki Matsumoto
Why does not dark matter discovered yet?

Cosmology and First Light

(2015.12.07 - 2015.12.10–IAP, Paris, France)
Masahiro Takada
Halo bias (invited talk)

ILC tokusui workshop 2015

(2015.12.08–KEK)
Shigeki Matsumoto
ILC physics overview

B mode from Space

(2015.12.10 - 2015.12.16–Kavli IPMU)
Maresuke Shiraishi
Tensor mode bispectrum (invited talk)

B mode from Space

(2015.12.10 - 2015.12.16–Kavli IPMU (WPI))
Hajime Sugai
Optics Design for LiteBIRD and realization plan

DSU2015

(2015.12.14–Yukawa Institute for Theoretical Physics)
Yue-Lin Sming Tsai
Searching for Singlet- Doublet Mixing Majorana DM

Dark Side of the Universe 2015

(2015.12.14 - 2015.12.18–Yukawa Institute for Theoretical Physics)
Feng LUO
Gluino Coannihilation

Seminar at LAM

(2015.12.18–)
Masahiro Takada
SuMIRe (Subaru Measurements of Images and Redshifts)

Chunichi culture center (Out reach)

(2016.01.18–Chunichi culture center)
Shigeki Matsumoto
Unraveling the mystery of dark matter I

Subaru User's Meeting FY2015

(2016.01.19 - 2016.01.21–KKR hotel Atami)
Naoyuki Tamura
PFS current status

Subaru Users' Meeting FY2015

(2016.01.19 - 2016.01.21–KKR hotel Atami)
Miho N. Ishigaki
Medium-resolution spectroscopy along the stellar tidal stream Palomar 5

Geometry Seminar

(2016.01.26–Nagoya University)
Tirasan Khandhawit
Stable homotopy invariants for 4-manifolds with positive scalar curvature

(SAAO colloquium)

(2016.02.04–SAAO)
Yuki Moritani
Revealing the binary interaction in the puzzling gamma-ray binary HESS J0632+057

(SAAO seminar)

(2016.02.05 - 2016.02.06–SAAO)
Yuki Moritani
Subaru Prime Focus Spectrograph

Topology and Representation Theory

(2016.02.08 - 2016.02.19–Berkeley, University of California, USA)
Toshiyuki Kobayashi
Branching Problems in Representation Theory of Reductive Lie Groups

Seminar on Dynamical Systems and Number Theory

(2016.02.09–Sofia University)
Todor Milanov
The Riemann–Hilbert problem for Givental's total descendant potential

Topological Recursion and TQFTs

(2016.02.14 - 2016.02.19–Oberwolfach, Germany)
Todor Milanov
Vertex Algebras and the topological recursion for A_N singularity

Geometry, Representation Theory, and Differential Equations

(2016.02.16 - 2016.02.19–Kyushu University)
Toshiyuki Kobayashi
F-method for Symmetry Breaking Operators, 3

Chunichi culture center (Out reach)

(2016.02.20–Chunichi culture center)
Shigeki Matsumoto
Unraveling the mystery of dark matter II

F-theory @ 20

(2016.02.22 - 2016.02.26–Caltech, Pasadena, USA)
Taizan Watari
Heterotic String Soliton and Degeneration of K3

Nuclear astrophysics association workshop

(2016.02.22 - 2016.02.24–NAOJ)
Miho N. Ishigaki
Observational views of chemical evolution in the Galaxy (invited)

Seminar at University of Amsterdam

(2016.02.23–University of Amsterdam, Netherlands)
Todor Milanov
Fano orbifold lines and Integrable hierarchies

Homological Mirror Geometry

(2016.03.06 - 2016.03.11–Banff International Research Station, Canada)
Will Donovan
Twists and braids for general 3-fold flops

Statistics of Extrema in Large-Scale Structure

(2016.03.07 - 2016.03.11–Lorentz Center, Leiden U., Netherlands)
Masahiro Takada
Connecting Halo (peak) and Galaxy

Statistics of Extrema in Large Scale Structure

(2016.03.07 - 2016.03.11–Lorentz Center, Leiden U., Netherlands)
Masahiro Takada
Connecting Halos (peaks) and Galaxies

ASIAA/CCMS/IAMS/LeCosPA/NTU-Phys/NTNU-Phys Joint Colloquia

(2016.03.08–Taiwan)
Tsutomu Yanagida
The Origin of Matter in the Universe

Chunichi culture center (Out reach)

(2016.03.12–Chunichi culture center)
Shigeki Matsumoto
Unraveling the mystery of dark matter III

New Developments in Representation Theory

(2016.03.14–Singapore)
Toshiyuki Kobayashi
Symmetry breaking operators for real reductive groups

JPS conference

(2016.03.19 - 2016.03.22–Tohoku Gakuin U.)
Shigeki Matsumoto
DM searches @ ILC

Differential Topology 16

(2016.03.20 - 2016.03.22–University of Tsukuba)
Tirasan Khandhawit
Stable homotopy invariants for 4-manifolds

Matsue phenomenology workshop

(2016.03.25 - 2016.03.27–Shimane U.)
Shigeki Matsumoto
Heavy Fermion Bound States for Diphoton Excess at 750GeV

13 OUTREACH AND PUBLIC RELATIONS

The Kavli IPMU continues to convey the importance and pleasure of our research on physics and mathematics of the universe to the general public through a variety of outreach programs.

<p>April:</p> <ul style="list-style-type: none"> >> Screening of a Documentary Film <i>Particle Fever</i> >> Nobel Laureate Gerard 't Hooft visited Kavli IPMU >> Deciphering the Universe: Joint Public Event with ICRR >> Kavli IPMU hosts Interaction Collaboration Meeting at Kamioka <p>May:</p> <ul style="list-style-type: none"> >> Kavli IPMU Social Group Art Project takes over Piazza Fujiwara >> Journalist in Residence in Mathematics Program at the Kavli IPMU <p>June:</p> <ul style="list-style-type: none"> >> Science Café Universe 2015 begins <p>July:</p> <ul style="list-style-type: none"> >> Hyper Suprime-Cam's First Dark Matter Map created >> Second and Third Lectures at the "Science Café Universe 2015" attract crowds >> 8th External Advisory Committee Meeting <p>August:</p> <ul style="list-style-type: none"> >> Booth at the 2015 Super Science High School Student Fair >> Contemporary artist stays at the Kavli IPMU >> Women in Science Event encourages Students to pursue Research <p>October:</p> <ul style="list-style-type: none"> >> Open Campus Kashiwa 2015 >> Kavli Prize Laureate Lectures in Tokyo 	<p>November:</p> <ul style="list-style-type: none"> >> Kavli IPMU and ICRR Joint Public Lectures: See the unseen Universe <p>December:</p> <ul style="list-style-type: none"> >> Santa Claus visits the Donguri Day Nursery >> Honors at the 2015 Tokyo President's Special Award for Operational Improvement >> The 5th Annual WPI Joint Symposium <p>January:</p> <ul style="list-style-type: none"> >> Kavli IPMU signs MOU with the Institute of Statistical Mathematics >> Kavli IPMU and ELSI host Joint Public Lecture "Question of Origins" >> Kavli Foundation Science Program Team visits Kavli IPMU >> Nobel Prize in Physics Commemorative Lectures for the UTokyo Students and Personnel >> Magnetar could have boosted explosion of extremely bright supernova >> Researchers find Galaxy Cluster Environment not dictated by its mass alone <p>February:</p> <ul style="list-style-type: none"> >> Taking part in the AAAS Annual Meeting in Washington D.C. <p>March:</p> <ul style="list-style-type: none"> >> Kavli IPMU hosts "East and West view of the Universe" >> Kavli IPMU opens "Takaaki Kajita Nobel Prize Commemorative Lecture Series" >> Japanese Class Completion Ceremony
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Screening of a Documentary Film *Particle Fever*

A hundred people crowded into the Kavli IPMU's hall to watch a special screening of *Particle Fever* on April 5. This documentary film, distributed by ro*co films international, follows the lives of six physicists over the course of five years as they search for the Higgs particle at CERN. Interwoven with this story, the film illuminates how science and art are similar. It does this by emphasizing how they motivate us by driving curiosity, and

they make us strive for what we don't have yet. In short, they make us human. Kavli IPMU Professor and University of California Berkeley Professor Yasunori Nomura helped produce the Japanese subtitles for this special Kavli IPMU version, with permission from the movie company. After the screening, participants were able to meet and hear behind the scenes stories from Johns Hopkins Uni-

versity Professor David Kaplan, who starred in and produced the film. While Professor Nomura served as inter-



Yasunori Nomura (left) and David Kaplan (right).

preter, he kept the audience engaged with his wit and very liberal interpretations added with his own opinion.



After screening, participants surround Yasunori Nomura and David Kaplan.

Nobel Laureate Gerard 't Hooft Visited Kavli IPMU

Utrecht University Distinguished University Professor Gerard 't Hooft visited the Kavli IPMU, and gave a colloquium talk entitled "The Large Hadron Collider and New Avenues in Elementary Particle Physics" on April 16. 't Hooft was awarded the 1999 Nobel Prize in Physics for elucidating the quantum structure of electroweak interactions. In his talk, he reviewed milestones in the development of the Standard Model of elementary particles in reference to the discovery of the Higgs boson at CERN's Large Hadron Collider (LHC), and then explained what we could expect in the future with the LHC, which has restarted experiments using higher energy and luminosity, for elucidating remaining mysteries in particle physics. For example, discoveries of new particles would lead to new physics. In this issue of the Kavli IPMU News, Shigeki Sugimoto,

Professor at the Yukawa Institute for Theoretical Physics, Kyoto University, interviews Professor Gerard 't Hooft, see pp. 14 - 21.



Gerard 't Hooft giving a talk.

Deciphering the Universe: Joint Public Event with ICRR

On April 18, 400 people squeezed into a hall at the Amuser Kashiwa, near the JR Kashiwa station, to take part in the 12th joint public lecture event by two University of Tokyo institutes, the Kavli IPMU and the Institute for Cosmic Ray Research (ICRR). ICRR Associate Professor Shinji Miyoki gave the first talk on "The Last Homework from Einstein — Catch Gravitational Waves!" He explained the importance of the gravitational wave research and introduced the audience to experiments designed to find their direct evidence. Then, Kavli IPMU Professor and University of California Berkeley Professor Yasunori Nomura talked on "The Multiverse Cosmology — The Origin, Fate, and Outside of the Universe Predicted by the Latest Physics Theory." He enthusiastically explained what the multiverse theory is about, a theory that postulates the exist-

tence of many universes, and touched on its philosophical aspect. He also touched on the possibility of universes under different laws of physics.



Yasunori Nomura giving a talk.

Kavli IPMU Hosts Interaction Collaboration Meeting at Kamioka

On April 20–21, seventeen press officers from CERN, Fermilab, and eight other world-renowned particle physics research institutes traveled to the Kavli IPMU's Kamioka Branch Office for the Interaction Collaboration Meeting. Joined by four guest press officers from three institutes including RIKEN and the ICRR, participants shared their recent experiences, and there were



Meeting at the Kavli IPMU's Kamioka Branch Office.

updates on each institute's activities. Kavli IPMU Director Hitoshi Murayama gave a talk about research at the Kavli IPMU, and a Kavli IPMU press officer gave an update on the institute's outreach activities. The meeting ended with a tour of the Super-Kamiokande, EGADS, XMASS, KamLAND, and KAGRA guided by Kavli IPMU and ICRR researchers.



Participants visiting EGADS during the guided tour.

Kavli IPMU Social Group Art Project Takes Over Piazza Fujiwara

From May 12 to June 9, the Kavli IPMU Arts Society hosted the 5th *Science and Everyday Life* project in the Piazza Fujiwara. In this project, all Kavli IPMU researchers and staff are invited to contribute pictures corresponding to a given theme. This time, 27 pieces were put on display corresponding to the theme "order," including travel photos, photos of geodesic models,



Kavli IPMU researchers and staff chatting in the Piazza Fujiwara.

original composition of images, diagrams excerpted from published papers, formulae, and texts. During the free drink (contributed by Director Murayama and Administrative Director Haruyama) get together on May 29, people enjoyed a night chatting and looking at displayed pieces.



Enjoying displayed pieces.

Journalist in Residence in Mathematics Program at the Kavli IPMU

On May 14–16, the Kavli IPMU welcomed Sankei Shim-bun reporter Takeshi Maeda as part of a Journalist in Residence (JIR) program coordinated by Professor Koji Fujiwara at the Department of Mathematics, Kyoto University, with the cooperation of the Mathematical Society of Japan.

The program has been running since 2010, and is designed to give journalists the opportunity to experience a mathematics department or institute, and interview working mathematicians. To date, more than 30 people, mainly journalists, but also including TV directors, artists, and a lawyer, have taken part in the program.

For Maeda, it was an eye-opening opportunity to get to know the mathematics community through hearings, teatime, and seminars. "Being here was like riding a rollercoaster. I hope to use the things I've learned and spread the word to a wider audience," he said.

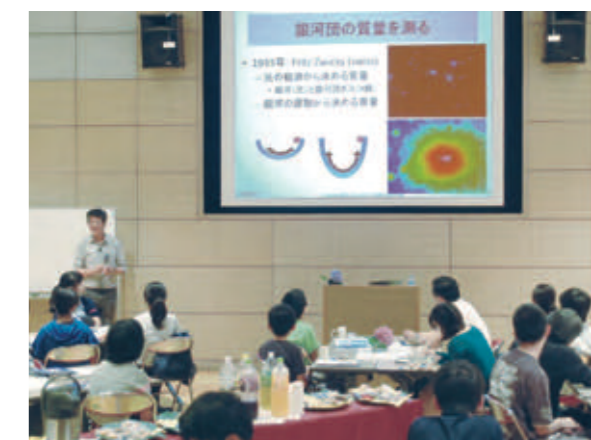
On June 29, US freelance journalist George Musser visited the institute on the same program. While he could only stay a day, the people here had a profound impact on him. "Talking to Kavli IPMU researchers was amazing, really mind-blowing," he said.

The Kavli IPMU hopes to continue to welcome these journalists into our institute.

Science Café Universe 2015 Begins

On June 21, the Kavli IPMU teamed up with the Tamarkoto Science Center in Nishitokyo City to host the first of a three-part Science Café Universe 2015 running from June to July. Altogether, three researchers from different fields talk their stories about using physics and mathematics to solve the mysteries of the universe. The Science Café Universe series has been held every year since 2009, making this the seventh in its series.

On this day, more than 40 participants, mostly junior high and high school students, listened to Kavli IPMU Professor Yoichiro Suzuki, who talked in detail about what dark matter is, and how he and his colleague are trying to uncover its identity. The participants enjoyed his talk in a relaxed atmosphere with tea and cookies.



Yoichiro Suzuki giving a talk.

Hyper Suprime-Cam's First Dark Matter Map Created

An international team of researchers including the National Astronomical Observatory of Japan, Kavli IPMU, and Princeton University released a dark matter map they had created using the Hyper Suprime-Cam (HSC). This is the first scientific research result produced by HSC. The high-powered HSC mounted on the Subaru

Telescope in Hawaii allowed researchers to study 2.3 square degrees of night sky in great detail, revealing nine clumps of dark matter, each weighing as much as a galaxy cluster. The result was published in the July 1 edition of the *Astrophysical Journal*.

Second and Third Lectures at the "Science Café Universe 2015" Attract Crowds

Inside the giant planetarium at Tamarokuto Science Center in Nishitokyo City on July 5, Kavli IPMU Professor Naoki Yoshida gave a talk titled "Exploring the Milky Way: Intersection between Modern Cosmology and Cosmoarchaeology" to around 50 guests, many of them being junior high school and high school students. Starting with the Tanabata (the July 7 star festival) legend of Japan and China, Professor Yoshida talked about from the Milky Way galaxy to the large-scale structure of the universe, while projecting images onto the entire planetarium dome.



Naoki Yoshida's Q&A session took place outside the planetarium.

On July 12, this year's science café series ended with a session on "Differential Geometry of Shapes: Soft Shapes and Solid Shapes" by Kavli IPMU Assistant Professor Tomoyuki Abe. The 40 or so guests, of which about half were junior high school or high school students, not only heard the lecture but also learned about manifolds by passing around models of shapes, and working on solving equations together. Professor Abe concluded his lecture by briefly addressing the link between geometry and general relativity.



Tomoyuki Abe giving a lecture.

8th External Advisory Committee Meeting

On July 24, 2015, the 8th Meeting of the Kavli IPMU External Advisory Committee was held. News about the Kavli IPMU receiving a WPI funding extension, and how the institute plans to use the extension to tackle competitive challenges were reported to Chairman Steve Kahn (Stanford/SLAC), and committee members John Ellis (King's College London), Young-Kee Kim (University of Chicago), Sadayoshi Kojima (Tokyo Institute of Technology), David Morrison (UC Santa Barbara), and Sadanori Okamura (Hosei University). This time, one of the committee members Nigel Smith (SNOLAB) was absent. The Committee also discussed topics such as future support from the University of Tokyo, and the importance of raising the profile and goal of the WPI program for Japan's future.



Director Murayama presenting an overview to the External Advisory Committee members.

Booth at the 2015 Super Science High School Student Fair

At the peak of summer, all nine institutes in the World Premier International Research Center Initiative (WPI) family, including the Kavli IPMU, spent two days meeting students at the 2015 Super Science High School Student Fair (August 5–6). The WPI booth was one of

300 booths present at this year's fair. Curious students came up to Kavli IPMU staff asking what kind of research is being carried out to understand the Universe, and what they would need to study to join the Kavli IPMU in the future.

Contemporary Artist Stays at the Kavli IPMU

Under the Kavli IPMU's first artist-in-residence program, contemporary artist Yasuo Nomura stayed at the institute from August 17 to September 11, 2015. Nomura spent his time taking part in tea time and seminars. At his welcoming party, around 20 Kavli IPMU researchers were treated to his presentation about how he turns Ulam spirals into two-dimensional pieces of art. Around 10 researchers took part in a tour of Nomura's temporary art workshop, where he introduced sketches of pictures he had made that were influenced by the insti-

tute, and further five researchers tried their own hands at drawing in Nomura's art workshop. Some researchers requested the art workshop be extended from a few hours to a few days. A number of researchers also said art helped to give them a different perspective to look at their research. "Every day I find something new. It is a perfect environment to stimulate work," said Nomura. Hopefully this will be a start to a long collaboration between art and science.

Women in Science Event Encourages Students to Pursue Research

Teenagers and their parents were invited to hear what sort of research women scientists carry out today, and to take part in experiments of their own during a science event co-hosted by the Institute for Cosmic Ray Research (ICRR) and the Kavli IPMU on August 22, 2015. Thirty-eight junior high school and high school girls listened to ICRR Assistant Professor Michiko Oishi's talk, "Looking for the Origin of Cosmic Rays," and Kavli IPMU Postdoctoral Researcher Yuki Moritani's talk, "Black-holes or Pulsars? Uncovering the Secret behind Gamma-Ray Binaries." Students also assembled a miniature model of an atmospheric Cherenkov telescope array with small parabolic mirrors, and tried their own group experiment using laser light source to see which group could make the most accurate observations. Students commented that they were grateful to be given the chance to talk with speakers.

The event provided the 20 or so parents the chance to ask Dr. Moritani and Kavli IPMU project academic support specialist Tomoko Morii about how choosing sci-

ence as a career has affected them, and what they should do to support their daughters. A number of parents commented they were able to get a better image of what a woman scientist does, and some of them kept asking questions even after the event had finished.



Conversations at the Kavli IPMU's Fujiwara Interaction Area.

Open Campus Kashiwa 2015

"Bright Science, from Kashiwa" was the theme of this year's open campus (October 23–24, 2015). Highlights at the Kavli IPMU included special seminars on both days, "The Dark Side of the Universe through the Eyes of the Subaru Hyper Suprime-Cam" by Professor Masahiro Takada on the first day, and "Capturing Dark Matter: Closing in on the Mystery of the Universe from Underground" by Yoichiro Suzuki on the second day.

Kavli IPMU Postdoctoral Fellow Ryo Namba and contemporary artist and Artist in Residence participant Yasuo Nomura took part in a talk event about the link between science and art.



Masahiro Takada's talk.

Special exhibitions on display during the two-day event included an Artist in Residence art exhibition showcasing Nomura's work, mathematics puzzles, Kavli IPMU tours, and a screening of the science documentary *Particle Fever*, with Japanese subtitles advised by UC Berkeley Professor and Kavli IPMU Visiting Senior Scientist Yasunori Nomura, and by Kavli IPMU staff.

With most of the country still in celebration over Takaki Kajita receiving the Nobel Prize, the open campus attracted a record number of visitors: more than 10,000 came by Kashiwa campus over the event, 3,700 to the Kavli IPMU alone.



Yoichiro Suzuki's talk.

Kavli Prize Laureate Lectures in Tokyo

On October 31, 2015, up to 400 visitors came to Kokuyo Hall in Shinagawa, Tokyo, to hear renown scientists speak at the "2015 Kavli Prize Laureate Lectures," supported by the Kavli Foundation, the Norwegian Academy of Science and Letters, the Norwegian Embassy, and the Kavli IPMU.

The event started with a welcoming from Kavli Foundation President Robert Conn. With Kavli IPMU Director Hitoshi Murayama as host, physical chemist and 2014 Kavli Prize in Nanoscience laureate Thomas Ebbesen talked about his work in nano-optics, and theoretical physicist and 2014 Kavli Prize in Astrophysics laureate Alan Guth talked about cosmic inflation and whether our universe is really part of a multiverse.



(From left) President Conn, Professor Guth, Director Murayama, and Professor Ebbesen.

Kavli IPMU and ICRR Joint Public Lecture: See the Unseen Universe

On November 22, 2015, the Kavli IPMU and University of Tokyo Institute for Cosmic Ray Research (ICRR) hosted their 13th joint event at the University of Tokyo's Hongo campus. More than 170 people, from young junior high school students to senior citizens filled up the Koshiba Hall.

Kavli IPMU Associate Professor Kai Martens started the event, with a talk titled "Dark Matter: Mystery, Imagination, and Challenge." In it, he talked about how scientists first found evidence concluding that dark matter exists in the Universe, and about his own work on the XMASS project. In the next talk, ICRR Project Assistant Professor Masaaki Hayashida gave a talk titled "Look into Our Dynamic Universe Using High-Energy Gamma Rays," and explained how scientists study the Universe using gamma rays, and shared stories about the Cherenkov Telescope Array currently being built.

Following on from the talks, both speakers took part in a discussion titled "Making the World's Only Handmade Machine." There, they shared stories about what got

them interested in their current projects, what other projects they had worked on, and characteristics about the equipment that both of them currently work on. The teatime at the end of the event gave participants a chance to ask their own questions to the speakers. The room was buzzing with conversations for a long time, providing an uplifting end to the event.



Kai Martens (left) and Masaaki Hayashida on stage.

Santa Claus Visits the Donguri Day Nursery

The Kashiwa Campus Donguri Day Nursery threw its annual Christmas party on December 18, 2015. This year, Kavli IPMU Assistant Professor Kevin Bundy trans-

formed into Santa Claus, and joined in the celebration with the Donguri children.



Kevin Bundy as Santa Claus.

Honors at the 2015 UTokyo President's Special Award for Operational Improvement

For their part in improving international researcher support, Kavli IPMU International Relations and Researcher Support Section members, Rieko Tamura and Hisami Kuboshima, were commended at the 2015 University of Tokyo President's Special Award for Operational Improvement on December 18, 2015, held at the Yasuda Auditorium on the university's Hongo campus. Tamura and Kuboshima were part of a strategy team led by Midori Ozawa, Specialist at the International Affairs Department's International Planning Group, and including two members from that Group. The team developed a website designed to help university staff and overseas researchers understand the paperwork needed when coming to Japan. The website uses many features used at the Kavli IPMU, and it is hoped these will spread across the university and improve globalization.

The team leader Midori Ozawa served as Head of the Kavli IPMU International Relations and Researcher Support Section since its launch in October 2007 to March 2014.



University of Tokyo President Gonokami (front row center) and all the recipients of 2015 University of Tokyo President's Awards for Operational Improvement.

The 5th Annual WPI Joint Symposium

On December 26, 2015, the Kavli IPMU took part in the 5th Annual WPI Joint Symposium "Seeing, Touching, and Feeling Science" at Kyoto University. This year's event was hosted by the Institute for Integrated Cell-Material Sciences (iCeMS).

Every year, the symposium has invited local high school students to hear and ask about the latest cutting edge developments in science.

This year's event included talks from three scientists, and a special talk by Kyoto University President and gorilla expert Juichi Yamagiwa. A special highlight of the day was a panel discussion where scientists shared stories about their research notebooks, and how it shapes their work. The other WPI institutes including the Kavli IPMU set up booths upstairs, and enjoyed the time answering questions from curious students and participants.



High school students crowd around WPI booths.

Kavli IPMU Signs MOU with The Institute of Statistical Mathematics

The Institute of Statistical Mathematics (ISM) and the Kavli IPMU agreed to broaden research collaborations during an MOU signing on January 5, 2016. Kavli IPMU Director Hitoshi Murayama, Professor Naoki Yoshida, and ISM Director-General Tomoyuki Higuchi were present on the day. Both institutes have already been collaborating on a Japan Science and Technology Agency CREST (Core Research for Evolutional Science and Technology) project "Statistical Computational Cosmology with Big Astronomical Imaging Data" (Research Director: Naoki Yoshida), which started in October 2014. The new partnership will drive development of a new field of statistical computational cosmology.



Kavli IPMU Director Murayama and ISM Director-General Higuchi signing the MOU, with the presence of Professor Yoshida.

Kavli IPMU and ELSI Host Joint Public Lecture "Question of Origins"

For the first time, two WPI (World Premier International Research Center Initiative) centers studying "origins," the Kavli IPMU and Tokyo Institute of Technology's Earth-Life Science Institute (ELSI), hosted a public event presenting the latest developments in research, and discussing the question about origins using philosophy. WPI Program Director Toshio Kuroki opened the event on January 10, 2016, where 300 people came to the Miraikan (The National Museum of Emerging Science and Innovation) in Odaiba, Tokyo to hear Kavli IPMU Director Hitoshi Murayama's talk "The Origin of the Universe and the Birth of Stars," and ELSI Director Kei Hirose's talk "The Origin of Earth and the Birth of Life," and lastly University of Tokyo Center for Philosophy Director Shinji Kajitani's talk "Genealogy of Science and World Views – Historical Meaning behind Human Existence." Afterwards, the three speakers took part in a

round table "What Does It Mean to Question Origins?" The event ended with conversations between the lecturers and the audience.



From left to right: Kei Hirose, Hitoshi Murayama, and Shinji Kajitani.

Kavli Foundation Science Program Team Visits Kavli IPMU

Kavli Foundation Executive Vice President and Science Program team leader Miyoung Chun, and Science Program Directors Christopher Martin and Sharif Taha visited the Kavli IPMU on January 18, 2016. The guests first heard 30 minute presentations from Kavli IPMU Professor Masashi Hazumi, Professor Masahiro Takada, Professor Mark Vagins, and University of Tokyo's School of Science Associate Professor and Kavli IPMU Scientist Yuji Tachikawa. Following this, five minute presentations were given by Kavli IPMU Postdoctoral Fellows Teppei Okumura, Dulip Piyaratne, Ran Huo, Yuki Moritani, James Wallbridge, Itamar Yaakov, and Lluís Magro. The guests enjoyed taking part in tea time before listening to Kavli IPMU Director Hitoshi Murayama's talk about the latest developments at the institute, and ending with a dinner with researchers.



Masashi Hazumi presenting research activities.

Nobel Prize in Physics Commemorative Lectures for the UTokyo Students and Personnel

Around 600 students and university personnel crowded into the University of Tokyo's Yasuda Auditorium in the evening of January 18, 2016, to commemorate Institute for Cosmic Ray Research Director and Kavli IPMU Principal Investigator Takaaki Kajita on receiving the 2015 Nobel Prize in Physics. The event was broadcast live to a total of five places on the Hongo, Komaba, and Kashiwa campuses and the Kamioka Observatory. University of Tokyo President Makoto Gonokami started by announcing Professor Kajita would be the fifth person in the university's history to be given the title Special University Professor/Professor Emeritus. Following

this was a talk by Kavli IPMU Director Hitoshi Murayama titled "Our Father, Neutrinos," and another by Professor Kajita titled "Discovery of Neutrino Mass." Professor Kajita made it a personal presentation, describing the moment he realized his analysis of Kamiokande's atmospheric neutrino data was indicating neutrino oscillations, to moving from Kamiokande to Super-Kamiokande, and finally discovering neutrino oscillations. To finish the night, Professor Kajita was given a bouquet of flowers, and a special message board representing Super-Kamiokande and filled with messages from fellow faculty members and students.

Magnetar Could Have Boosted Explosion of Extremely Bright Supernova

A group of researchers led by Melina Bersten, Researcher at Instituto de Astrofísica de La Plata, Universidad Nacional de La Plata in Argentina and Kavli IPMU Visiting Associate Scientist, and including Kavli IPMU Principal Investigator Ken'ichi Nomoto, tested a model that suggests that the energy to power the luminosity of two recently discovered unusual super-luminous

supernovae, SN 2011kl and ASASSN-15lh, is mainly due to the rotational energy lost by a newly born rapidly rotating and strongly magnetized neutron star called a *magnetar*.

For more details, see page 26 of this issue of the Kavli IPMU News. The group's paper was published in *Astrophysical Journal Letters* on January 20, 2016.

Researchers Find Galaxy Cluster Environment Not Dictated by Its Mass Alone

An international group of researchers including Kavli IPMU Assistant Professor Surhud More, Professor Masahiro Takada, NASA Jet Propulsion Laboratory / California Institute of Technology Researcher Hironao Miyatake (formerly a JSPS Fellow at the Kavli IPMU), and Princeton University Professor and Kavli IPMU Principal Investigator David Spergel divided almost 9000 galaxy clusters from the Sloan Digital Sky Survey DR8 galaxy catalog into two samples based on the spatial distribution of galaxies inside each cluster (on an order of 1 million light years scale).

By using gravitational lensing they confirmed the two samples have similar masses, but that the distribution of clusters was different, and the difference is a result of the different dark matter environment in which they

formed. Galaxy clusters in which member galaxies bunched up towards the center were less clumpy than clusters in which member galaxies were more spread out. They found the total amount of dark matter extending to an order of 100 million light year scale around the member of the former sample of galaxy clusters was about 1.5 times less than that around the member of the latter sample.

Their findings showed for the first time that the connection between a galaxy cluster and surrounding dark matter is not characterized solely by the mass of clusters, but also by their formation history. The results were published in *Physical Review Letters* on January 25, 2016 as an Editor's Suggestion.

Taking Part in the AAAS Annual Meeting

This year's American Association for the Advancement of Science (AAAS) Annual Meeting (February 11–15) was held in Washington, D.C. MEXT, JSPS, and the nine WPI centers took part in it and jointly hosted the WPI booth for three days (February 12–14) to further promote the research being carried out at each WPI center to an international audience. For the first time, ques-

tionnaires were handed out at the WPI booth in order to see how much the American public was aware of the program. The results revealed that the Kavli IPMU was the most well-known among visitors. During three days, the WPI booth was visited by more than 320 people including researchers, journalists, students, and families.

Kavli IPMU Hosts "East and West Views of the Universe"

The Kavli IPMU lecture hall reached full capacity on March 20, 2016, when the institute hosted the public lecture "East and West Views of the Universe." To begin with, University of California, Berkeley Professor and Kavli IPMU Visiting Senior Scientist Yasunori Nomura gave a talk titled, "Multiverse Theory – The Universe as Explained by Theoretical Physics." Then, Chinese philosophy expert and Institute for Advanced Studies on Asia, the University of Tokyo Professor Takahiro Nakajima gave a talk titled, "The Ins and Outs of Cosmology – Imagination of China's Theory of the Universe." Following the talks, both speakers discussed the East and West views of the Universe, and how physicists and philosophers regard the cosmos. The day ended with tea time, where speakers and members of the audience crowded around one another with tea and coffee, asking more questions and discussing ideas.



Yasunori Nomura (left) and Takahiro Nakajima (right) discussing.

Kavli IPMU Opens "Takaaki Kajita Nobel Prize Commemorative Lecture Series"

As part of the University of Tokyo's celebrations in commemorating Takaaki Kajita's Nobel Prize in Physics, the Kavli IPMU hosted a public event titled, "Where do we come from? – Beyond the Nobel Prize in Neutrinos" at the Yasuda Auditorium on March 27, 2016.

About 470 people came to hear about the latest developments in neutrino research from a theoretical and experimental perspective, with Kavli IPMU Director Hitoshi Murayama talking about "Neutrinos as our father who protected us from a complete annihilation," and Professor Mark Vagins talking about "Supernovae as our mother who gave birth to the elements of nature." The audience was most excited when Professor Vagins explained how last year, permission was granted within the Super-Kamiokande collaboration to inject gadolinium into the Super-Kamiokande's pure water in order to begin a new project to detect supernova relic neutrinos. The event was a great success in introducing

the future of research in the field. The next lecture in this event series will be cohosted by the School of Science and the Institute for Cosmic Ray Research on April 24.



Mark Vagins giving a talk.

Japanese Class Completion Ceremony

The Kavli IPMU has been offering Japanese classes to researchers and their families. To date, a lot of people have completed their 40 hours of Introductory Japanese Course taught by Kavli IPMU's Japanese Language teacher Masami Nishikawa.

This time, four students celebrated finishing their Japanese classes on March 29, 2016, and received their certificates. They are Kavli IPMU Postdoctoral Fellows David Stark, Luo Feng, Han Chengcheng, and Kavli IPMU Academic Support Staff Joshua Speagle's fiancée Rebecca Bleich.



Photo of four Japanese class students having their certificates, with Japanese Language teacher Masami Nishikawa (back row, second from the right) and other attendants.

Kavli IPMU News

Four issues of the Kavli IPMU News have been published in FY 2015.



Ask a Scientist

A series of "Ask a Scientist" video clips is shown to the public on the Kavli IPMU website and YouTube. Kavli IPMU researchers explain scientific terms related to the research program at the Kavli IPMU in a few minutes. Two new clips were released in FY2015



The Nobel Prize in Physics 2015
Hitoshi Murayama



Diffuse Supernova Neutrino Background
Luis Marti Magro

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