

News

Opening Symposium and Reception

On March 11 and 12, 2008, the IPMU Opening Symposium was held at the Media Hall in Kashiwa Library at the University of Tokyo. Details on the symposium can be found on page 15.

The symposium was preceded by a reception held on March 10 at the Crest Hotel Kashiwa to celebrate the foundation of the IPMU. The following guests gave speeches (in chronological order): Yasutaka Moriguchi (Director General of the Science and Technology Policy Bureau, MEXT), Iwao Matsuda (former Minister of Science and Technology Policy, Food Safety and Information Technology; Member of the House of Councilors, the National Diet of Japan), Young Kee Kim (Deputy Director of the Fermi National Accelerator Laboratory), Akiko Domoto (Governor of Chiba Prefecture), Akira Honda (Mayor of Kashiwa City), David Gross (Director of the Kavli Institute for Theoretical Physics, UC Santa Barbara), and Shing-Tung Yau (Professor, Harvard University).

Masahiro Takada wins ASJ Young Astronomer Award

On March 26, 2008, the Astronomical Society of Japan (ASJ) announced that Masahiro Takada, an associate professor at IPMU, had

been selected as a recipient of the ASJ Young Astronomer Award. Every year, the ASJ awards the prize to up to three young astronomers, aged 35 or less, who have made distinguished contributions to astronomy over the past five years. The award ceremony was held during the ASJ annual meeting.

Takada received the prize for his study on the distribution of the dark matter. Dark matter, by definition, is invisible in electromagnetic radiation, which makes its properties totally mysterious. Takada has developed a theoretical method to probe dark matter using the gravitational lensing phenomenon predicted by Einstein's general theory of relativity. When an astronomer observes galaxies, their shapes are affected by gravitation of the intervenient dark matter. This is the essential point to the strategy behind Takada's proposal. Takada has also led observations using the Hubble Space Telescope and the Subaru Telescope, and has successfully identified the distribution of dark matter.

"This prize is very exciting, as it encourages our efforts to understand the hidden parts of the Universe by scientific knowledge," said Takada.

"Exploring the dark part of the Universe requires totally new, revolutionary ideas. We look with hope to young researchers as a source for these ideas. The prize reaffirms this important point," commented IPMU Director, Hitoshi Murayama.

Hiroshi Ooguri wins the Humboldt Prize

The Humboldt Foundation, a German counterpart of the Nobel Foundation of Sweden, announced that Hiroshi Ooguri, a principal investigator of IPMU, is to receive the Humboldt Prize for 2009. This

prize is awarded to internationally leading researchers who have made fundamental discoveries in the arts, human sciences, or natural sciences. Ooguri was selected as the prize recipient for his work in developing a mathematical method in quantum field theory and string theory.

The award ceremony will be held in March 2009 at a symposium and reception in Berlin hosted by the German prime minister. Ooguri is planning to use the prize money, 60,000 Euros, to study unifying quantum theory and gravitation theory in collaboration with the Max-Planck-Institute in Germany.

IUPAP Young Scientist Prize awarded to Naoki Yoshida and Eiichiro Komatsu

The International Union of Pure and Applied Physics (IUPAP) announced that Naoki Yoshida, a physicist to join IPMU as an associate professor from September 2008, had been selected to receive the IUPAP Young Scientist Prize in Computational Physics. Yoshida received the prize for his state-of-art computer simulation study on the large-scale structure of the Universe. The ceremony will be held at an IUPAP symposium in August 2008, in Brazil.

IUPAP also announced that Eiichiro Komatsu, an associate professor at the University of Texas and a joint scientist of IPMU, had been named a recipient of the IUPAP Young Scientist Prize in Astrophysics, for his study on the cosmic microwave background. The ceremony will be held at a symposium on relativistic astrophysics in December 2008, in Canada.

External Advisory Committee

The External Advisory Committee

of IPMU met for the first time on the Kashiwa Campus on March 13, 2008, just after the Opening Symposium. The Committee is made up of eight distinguished researchers from around the world, of whom seven participated in the meeting.

The report from the Committee members lauds the speed with which the institute was established, declaring that “the organization of the institute in the first few months of its existence is nothing less than spectacular.” The report also stresses the importance of the University of Tokyo’s role in supporting the institute, and offers various suggestions on ways for the institute to play a major role worldwide. IPMU members have taken the constructive comments from the Committee seriously and have used them to plan out the further development of the institute.



Site visit

On April 17, 2008, delegations from JSPS and MEXT came to IPMU for a site visit. Prominent members included the WPI Program Director (PD), Toshio Kuroki, and the Program Officer (PO) assigned to IPMU, Ichiro Sanda. Two presenters, Hitoshi Murayama (Director of IPMU) and Sadanori Okamura (Vice President of the University of Tokyo), spoke on the current status and future strategy of IPMU. Visiting delegates and IPMU members discussed ways to further improve the management of IPMU from comprehensive

perspectives. The delegates also met with many researchers working at IPMU, especially young researchers and foreign researchers.



First WPI Follow-up Meeting

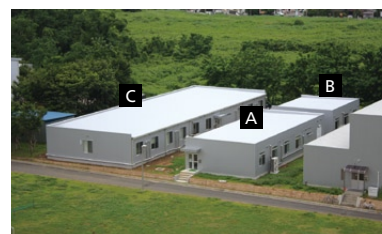
The WPI Program Committee held its First Follow-up Meeting on May 20, 2008, in Tokyo. The Directors of the five WPI Centers selected last year presented progress reports on the work they had completed during the first six months. The Committee assessed the state of progress at each WPI Center, based on the progress report presentations and the site visit reports prepared by the PD and POs. The Committee spared no praise for the strong leadership of the IPMU Director, Hitoshi Murayama.

The Committee’s comments can be found at http://www.jsps.go.jp/english/e-toplevel/08_followup.html.

Prefabricated buildings for IPMU researchers completed

Soon after its launch in October of last year, IPMU located its temporary offices for researchers and administrative staff in the General Research Building on the Kashiwa Campus of the University of Tokyo. Researchers have been working side by side at desks set up in a large office room. Two prefabricated buildings were completed for IPMU researchers this May (A and B in the photo), and a third was completed in June (C). The researchers now enjoy a calmer

working environment, in private offices of their own or in offices for two.



The design work for the IPMU Main Research Building, a five-story structure with a total floor space of about 5,800m², is now at the final stage. The building is expected to be completed in the fall of 2009.

Conference Report —Focus Week: Neutrino Mass

IPMU held its second Focus Week from March 17 to 20, 2008. A gathering of about 40 experts from various fields came to the conference from all over the world to discuss the elusive questions of neutrino mass.

The invited speakers and the topics of their talks are listed in the announcement issued in the previous volume of the IPMU News. Schedules and presentation files can be found on the IPMU homepage.

The conference was quite successful. The talks covered a wide range of topics relevant to neutrino mass: Theory, Phenomenology, Experiments, Astrophysics, and Cosmology. The special format for Focus Week allowed researchers from diverse backgrounds to actively discuss common themes.

—Asian Mathematicians and Theoretical Physicists Conference

The IPMU Conference of Asian Mathematicians and Theoretical Physicists was held from March 20 to 22, 2008 to promote collaborations among researchers in Asia. About 25 researchers took part in the event,

including two speakers from India, four from South Korea, one from China, and four from Japan. Besides the scientific talks, IPMU Director Hitoshi Murayama presented plans on the future of the institute. His presentation was followed by a lunch meeting to discuss plans for collaborations among various research centers in Asia, including two in India (the Tata Institute in Mumbai and the Harish-Chandra Institute in Allahabad), two in South Korea (Seoul National University and the Korea Institute for Advanced Study), and one in China (Center for Mathematical Sciences in Zhejiang University). The IPMU will follow up on the discussion by promoting research exchanges between IPMU and these institutes.

—Moonshine Conference

On May 22 - 24, 2008, the Moonshine conference was held at the Media Hall in the Kashiwa Library at the University of Tokyo. Moonshine is a term referring to the mysterious relationship of a certain group of finite order, the so-called Monster group, with modular functions. This topic originated from an initial observation by J. McKay and the Moonshine conjecture proposed by J.H. Conway and S.P. Norton. Recent evidence indicates that Moonshine and Monster group are related to theoretical physics by nature. Specialists and theory originators came to the conference to discuss the current and historical movements around this area.

The invited speakers and the topics of their talks are listed on the IPMU homepage.

Future Conferences —Second Focus Week on LHC Phenomenology

IPMU is organizing the second LHC Focus Week, a small discussion-oriented meeting on New Physics at LHC. The meeting will be held at IPMU on June 23 to 27, 2008. It will take the same form of the "Focus Week," a week of presentations, two to three per day, with ample time for members to discuss and develop new projects. One day of the week will be reserved for workshops. Participants are encouraged to make presentations.

The following speakers are invited: Richard Cavanaugh (CMS, Florida), Hsin-Chia Cheng (UC Davis), Rikkert Frederix (Louvain), Yeong Gyun Kim (KAIST), Ryuichiro Kitano (LANL), Tommaso Lari (ATLAS, INFN), Christopher Lester (ATLAS, Cambridge), Takemichi Okui (Maryland), and Jay G. Wacker (SLAC). Further details can be found on the IPMU homepage.

Seminars

IPMU constantly hosts seminars presented by researchers from all over the world, including the IPMU regular seminars held every Wednesday, at 3:30 pm at the IPMU Kashiwa Campus. The regular seminar series covers introductory topics from fairly broad, multifaceted perspectives to encourage mutual communication between researchers with different research backgrounds. IPMU has also started two subgroup seminars on Thursdays at the IPMU Kashiwa Campus: the IPMU particle physics and astrophysics seminar (usually starts at 1:30 pm) and the IPMU mathematics seminar (starts at 3:30 pm). All of the seminars are held in English. We also hold the IPMU Komaba seminars

on Mathematical Physics in the Mathematical Science Building at the Komaba Campus, as well as frequent seminars on other topics with no fixed schedule.

—IPMU Seminars

Following is a list of seminars that have been held since February 21, 2008 (as of June 13, 2008). Information on the previous seminar talks can be found in the previous volume of the IPMU news. The seminar schedule is frequently updated on the IPMU homepage. The contact addresses of seminar organizers can also be found there.

1. "More visible effects on the hidden sector"
Speaker: David Poland (UC Berkeley)
Date: 21 February 2008
2. "Testing supersymmetric neutrino mass models at future collider experiments"
Speaker: Werner Porod (Univ. Wuerzburg)
Date: 22 February 2008
3. "Deformation of Brody curves and mean dimension"
Speaker: Masaki Tsukamoto (Kyoto Univ.)
Date: 27 February 2008
4. "KamLAND"
Speaker: Alexandre Kozlov (Tohoku Univ.)
Date: 28 February 2008
5. "Hunting for the geometry of supernova explosions by optical/NIR observations"
Speaker: Keiichi Maeda (IPMU)
Date: 5 March 2008
6. "Cosmology from spinning branes"
Speaker: Damien A. Easson (Durham Univ.)
Date: 14 March 2008
7. "Ensemble properties of cluster

- galaxies and their redshift evolution”
Speaker: Yen-Ting Lin (Princeton Univ.)
Date: 4 April 2008
8. “Cosmological unification of string theories”
Speaker: Simeon Hellerman (IAS)
Date: 9 April 2008
9. “Astrophysical probe of new physics: Cosmological dark matter and anisotropy”
Speaker: Shin’ichiro Ando (Caltech)
Date: 11 April 2008
10. “Killing superalgebras in supergravity”
Speaker: José M. Figueroa-O’Farrill (Univ. Edinburgh)
Date: 16 April 2008
11. “Integrable systems and intersection theory on moduli spaces of Riemann surfaces”
Speaker: Motohico Mulase (UC Davis)
Date: 23 April 2008
12. “Direct and indirect search for signals of the littlest Higgs model with T-parity at colliders”
Speaker: Chuan-Ren Chen (IPMU)
Date: 23 April 2008
13. “Phases of $N=2$ theories in 1+1 dimensions with boundary”
Speaker: Kentaro Hori (Univ. Toronto)
Date: 30 April 2008
14. “Limit stable objects on Calabi-Yau 3-folds”
Speaker: Yukinobu Toda (IPMU)
Date: 8 May 2008
15. “Cosmogenic neutrinos and the HiRes experiment”
Speaker: Kai Martens (Univ. Utah)
Date: 12 May 2008
16. “Derived categories in noncommutative geometry”
Speaker: Alexey Bondal (Univ. Aberdeen)
Date: 14 May 2008
17. “Toric degenerations of Gelfand-Cetlin systems and potential functions”
Speaker: Kazushi Ueda (Osaka Univ.)
Date: 21 May 2008
18. “ H^3 Liouville relation and its applications”
Speaker: Yasuaki Hikida (KEK)
Date: 28 May 2008
19. “Higgs boson mass bounds in the Standard Model with seesaw-induced neutrino masses”
Speaker: Nobuchika Okada (KEK)
Date: 29 May 2008
20. “Quivers, brane tilings and toric Calabi-Yau/Sasaki-Einstein geometry”
Speaker: Masahito Yamazaki (Univ. Tokyo)
Date: 29 May 2008
21. “On solutions to Walcher’s extended holomorphic anomaly equation”
Speaker: Yukiko Konishi (Kyoto Univ.)
Date: 4 June 2008
22. “Phases of $N=2$ theories in 1+1 dimensions with boundary Part II”
Speaker: Kentaro Hori (Univ. Toronto)
Date: 5 June 2008
23. “Indirect signatures of gravitino dark matter”
Speaker: Alejandro Ibarra (DESY)
Date: 9 June 2008
24. “String compactification and the landscape”
Speaker: Michael Douglas (Rutgers)
Date: 9 June 2008
25. “Balanced Kahler metrics and physics”
Speaker: Michael Douglas (Rutgers)
Date: 10 June 2008
26. “The 5-year Wilkinson Microwave Anisotropy Probe (WMAP) observations: Cosmological interpretation”
Speaker: Eiichiro Komatsu (Univ. Texas)
Date: 11 June 2008
27. “Generic Newton polygons of Ekedahl-Oort strata in the moduli space of abelian varieties”
Speaker: Shushi Harashita (IPMU)
Date: 12 June 2008
28. “Hunting for primordial non-gaussianity”
Speaker: Eiichiro Komatsu (Univ. Texas)
Date: 13 June 2008

—IPMU Komaba Seminars

The following seminars have been held since March 10 (as of June 13, 2008). The schedule can be found on the IPMU homepage.

1. “Geometric analysis and their applications in mathematics and theoretical physics”
Speaker: Shing-Tung Yau (Harvard Univ.)
Date: 10 March 2008
2. “Lecture: Homotopy theory (before 1970)”
Speaker: Akihiro Tsuchiya (IPMU)
Date: 8, 15, 22 April, 13 May 2008
3. “Recursion relations in intersection theory on the moduli spaces of Riemann surfaces”
Speaker: Motohico Mulase (UC Davis)
Date: 24 April 2008
4. “The hypoelliptic Laplacian”
Speaker: Jean-Michel Bismut (Univ. Paris-Sud, Orsay)
Date: 12 May 2008
5. “A survey of Quillen metrics”
Speaker: Jean-Michel Bismut (Univ. Paris-Sud, Orsay)
Date: 19 May 2008
6. “Intersection theory from duality and replica”
Speaker: Shinobu Hikami (Univ. Tokyo)
Date: 2 June 2008