

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.

