

Faces & Places

JAPAN

IPMU joins the Kavli family of institutes

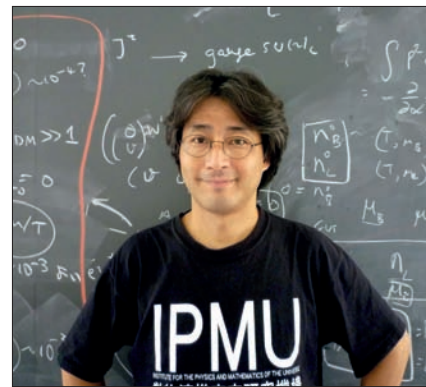
The University of Tokyo has announced the establishment of an endowment by the Kavli Foundation for the Institute for the Physics and Mathematics of the Universe (IPMU). The institute, which will now be known as the Kavli IPMU, probes the mysteries of modern cosmology through collaborative research conducted by a range of scientists, including mathematicians, theoretical physicists, experimental physicists and astronomers. Together they focus on topics such as dark matter, dark energy and the possibility of a single unified theory that can explain the cosmos at the smallest and largest scales.

The Kavli Foundation, based in Southern California, sponsors research in astrophysics, nanoscience, neuroscience and theoretical physics at institutes in countries across the globe, including China, the Netherlands, Norway, the UK and the US. Kavli IPMU is the foundation's 16th institute, its sixth in astrophysics, third in theoretical physics and the first to be established in Japan.

The Kavli IPMU, housed on the Kashiwa campus, outside Tokyo in the Chiba prefecture, has a team of around 200 researchers from 15 fields, with almost half coming from outside Japan. The director is Hitoshi Murayama, a particle physicist from the University of California, Berkeley, who works on subjects ranging from developing strategies for new particle-collider experiments to dark-matter



The Kavli IPMU building, left, and director Hitoshi Murayama, who is delighted that the endowment will help sustain the research programme. (Image credit: Kavli IPMU.)



theory and models of physics beyond the standard explanation for the nature of the universe. Deputy directors include Hiroaki Aihara, a particle physicist who is working on a new survey of distant galaxies to learn about the nature of dark energy, and Yoichiro Suzuki, who is heavily involved in an underground experiment to detect dark matter.

IPMU was established in 2007 as part of the World Premier International (WPI) Research Center Initiative, a programme by the Japanese government to promote interdisciplinary science in Japan, its international visibility and the globalization of Japanese universities. Proposed as part of the University of Tokyo, the IPMU

was one of six research proposals around the country to win sponsorship from the ministry of education, culture, sports, science and technology. Other WPI institutes are involved in materials research, cell biology, immunology, nanotechnology and alternative-energy development.

Although it receives funding support from the government and the university, IPMU must eventually identify other sources of support for it to become a permanent research centre. "The endowment income will help sustain the research programme at the Kavli IPMU beyond the current initiative by the Japanese government," Murayama said. "Now we can press on to attack the most basic and biggest mysteries of the universe."

APPOINTMENT

Rossi named deputy associate director for nuclear physics at Jefferson Lab

Patrizia Rossi will become the deputy associate director for experimental nuclear physics at Thomas Jefferson National Accelerator Facility in May.

Rossi received a degree from the University of Rome in 1986 and a fellowship from INFN in 1988, before joining the Laboratori Nazionali di Frascati (LNF-INFN) as a staff researcher in 1990. Her research has focused on studying the structure of the nucleon and the strong force, which are areas of major emphasis at Jefferson Lab. In addition to working at

Jefferson Lab and laboratories in Italy, Rossi also has conducted experiments at DESY and the European Synchrotron Radiation Facility in Grenoble.

Since 2003 she has served as co-spokesperson and LNF co-ordinator of Italian participation at Jefferson Lab and became a member of the laboratory's Program Advisory Committee in March 2010. She has collaborated on more than 160 refereed journal papers and has served as a member of numerous conferences and workshops.



Patrizia Rossi to become deputy associate director. (Image credit: Jefferson Lab.)

AWARDS

French Physical Society honours Daniel Fournier

Daniel Fournier, of the Laboratoire de l'Accélérateur Linéaire, has been awarded the Jean Ricard prize by the French Physical Society (SFP). He was presented with the award by Martial Ducloy, president of the SFP, in a ceremony at Orsay on 17 February, attended by many of his friends and colleagues. Fournier worked on the CELLO experiment at DESY and on NA31 and ATLAS at CERN, where he designed the "accordion" liquid-argon electromagnetic calorimeter for ATLAS.

The Jean Ricard prize is the SFP's most prestigious award and has been awarded to an experimental high-energy physicist only a few times since its creation in 1970. The former recipients in experimental high-energy physics are Georges Charpak, Paul Musset, Marcel Banner, Yves Declais and Alain Blondel.



Daniel Fournier, middle, with Ken Peach, former chair of CERN's scientific policy committee, left, and Martial Ducloy, president of the SFP, right.

OUTREACH

All you need to know in three minutes

Boris Lemmer, a PhD student at the Georg-August-Universität Göttingen on the ATLAS experiment, has moved a step nearer to international fame by winning the Geneva semi-final of the Swiss FameLab, following his victory in a recent "science slam" in Hanover (*CERN Courier* December 2011 p46). Twenty-two young scientists participated in the FameLab semi-final at CERN's Globe of Science and Innovation on 4 February, supported by a large audience and by more than 100 fans following via webcast. A panel of judges chose Lemmer and four other candidates to join five other semi-finalists at the national finals in Zurich on 30 March.

FameLab is an international competition to find the new voices of science and engineering. It was started in 2005 by the Cheltenham Science Festival in partnership with the National Endowment for Science, Technology and the Arts, and has grown to include 20 countries. In the competition, young scientists have three minutes to present their research in an entertaining



Boris Lemmer wins the Geneva semi-final of the inaugural Swiss FameLab.

and original way, understandable to a broad audience. Switzerland is participating this year for the first time.

● For a video of the Geneva semi-final, see <http://cdsweb.cern.ch/record/1421673>.



Fabiola Gianotti, spokesperson of the ATLAS collaboration, was awarded the degree of Doctor Honoris Causa at Uppsala University on 27 January. She received the degree, which was conferred by Tord Ekelöf, for her distinguished research career in experimental elementary-particle physics research at CERN's particle colliders and for her outstanding scientific leadership.

Gianotti has conducted research at CERN at the Super Proton Synchrotron running as a proton-antiproton collider and at the Large Electron-Positron collider. She is now with the ATLAS experiment at the LHC. Researchers at Uppsala University form one of the 167 groups around the world that are members of the ATLAS collaboration. (Image credit: Uppsala University.)

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SCHOOLS

Singapore and CERN collaborate in winter school

A three-week school on Particle Physics, Cosmology and Implications for Technology took place in January, organized by the Institute of Advanced Studies (IAS) at Nanyang Technological University (NTU), in Singapore, with the participation of CERN. The participants ranged from undergraduates to graduates, postdocs and research faculty. More than 90 students attended, including 59 overseas and 33 local participants; of these, 18 were female students. Among the overseas participants, 27% came from mainland China and Taiwan, 20% from India, 12% each from Thailand and Indonesia, 7% each from Iran and Malaysia, and the remainder from Vietnam, the Philippines, Hong Kong, Russia, Korea and the US.

The school was designed to fill the need of many of the young students and researchers who have returned to their home countries to keep up with the latest discoveries and advances in the field. Major research centres have traditionally organized summer and winter schools to fill this need – for example, at Boulder, Colorado, in the US and at CERN, Les Houches and Erice in Europe. The winter school in Singapore is the first such advanced school to be held at the IAS.

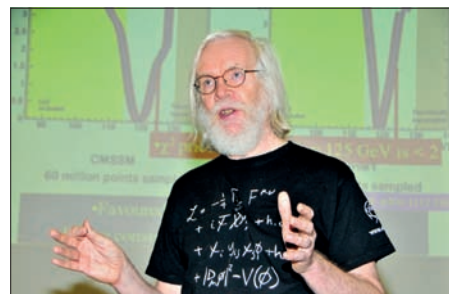
In addition to lectures, tutorial sessions in the afternoon allowed the students – including undergraduates – to ask probing questions of the experts. The spirit was to reflect the effort at Lindau and the International Science Youth Forum to bring inquiring young minds into contact with frontier scientists. Lecturers included John Ellis, Harald Fritzsch, Ignatios Antoniadis, Serguey Petcov, Albert DeRoek, Barbara Jacak, Philip Burrows, Henry Tye, Emmanuel Tsismelis, Ngee Pong

Chang, Xiangdong Ji and Josef Nir.

Two public talks were also organized during the school. Ellis gave an evening lecture to a packed audience on “The Large Hadron Collider: answering Gauguin’s questions about the universe”; and Fritzsch delivered an interesting lecture on his autobiography, “Escape from Leipzig”.

Princess Maha Chakri Sirindhorn of Thailand agreed to act as the patron for the school, which was opened by Singapore’s Deputy Prime Minister Teo Chee Hean in a ceremony on 9 January. Teo is confident that the move will boost Singapore’s plans for science and technology. “The IAS School takes the collaboration between NTU and CERN to a higher level, and helps position NTU as the Asian research hub in the global network of scientific institutions that focus on high-energy physics,” he said. The school was chaired by K K Phua, director of the IAS, and co-chaired by Ngee Pong Chang from City University New York and Emmanuel Tsismelis of CERN.

The success of the school has encouraged the IAS, with participation from CERN, to organize another workshop in 2013 and another school in 2014.



John Ellis, sporting a CERN T-shirt while he lectures at the school.



Lecturers and students attending the school. (Image credits: IAS.)

OBITUARY

André Petermann 1922–2011

André Petermann, one of the first members of CERN's Theory Division, passed away last August in his 89th year. He pioneered, together with his adviser Ernst Stueckelberg, the renormalization group, one of the fundamental ideas in quantum field theory, which underlies the modern theory of phase transitions as well as asymptotic freedom and the quest for unification of all of the particle interactions.

André was among the first staff members of CERN, which at the beginning consisted of a small group of theorists at the Niels Bohr Institute in Copenhagen, headed by Bohr himself. When the group moved to Geneva they first occupied a set of barracks in Cointrin, next to the airport, before moving to the University of Geneva and then finally settling on the Meyrin site. For CERN's theoreticians, André was the last direct contact with these nomadic origins.

The importance of André's early work on the renormalization group was recognized by Kenneth Wilson, when he was awarded the Nobel Prize in Physics for his work on applying the renormalization group to critical phenomena. Wilson kindly acknowledged a congratulatory letter from André by paying tribute to his joint paper



A young André Petermann.

with Stueckelberg for initiating the whole renormalization-group effort.

Another of André's important contributions to field theory and particle physics was his pioneering calculation of the next-to-leading order correction to the anomalous magnetic moment of the muon. This was key to the interpretation of CERN's famous experimental measurement of this quantity and is still a reference today, at a time when the theoretical interpretation of this quantity is much debated.

André's scientific interests ranged far and wide, extending in later years to include grand unification and the study of superstring compactifications. Long after his formal retirement, he would often be encountered browsing preprints late at night and many of us recall with fondness long telephone calls from André, quizzing us about some recent publication.

André was a special person, somebody with great purity of vision, breadth of interest and integrity. He had a deep understanding of physics and mathematics, and was an exceptional man whose manifold contributions to physics will live on. CERN's theory group is grateful to him: we feel deeply his passing.

● *Luis Álvarez-Gaumé, Ignatios Antoniadis, John Ellis and André Martin.*

MEETINGS

CIPANP 2012, the **11th Conference on the Intersections of Particle and Nuclear Physics**, will take place in St Petersburg, Florida, on 28 May – 3 June. The conference is designed to explore areas of interest to scientists working in elementary particle physics, nuclear physics, astrophysics, particle astrophysics, nuclear astrophysics and cosmology. Topics include theory, experiment and instrumentation, as well as facilities needed for the study of fundamental interactions, elementary particles, nucleons and nuclei, astrophysical phenomena and cosmic rays. CIPANP 2012 encourages participation by scientists of diverse backgrounds, in particular the participation of younger scientists. For more details, see <http://cipanp2012.triumf.ca>.

The **12th Heavy Ion Accelerator Technology Conference**, HIAT2012, will be held on 18–21 June in Chicago, hosted by Argonne National Laboratory. This international conference is dedicated to the design, construction, development

and operation of heavy-ion accelerators and their components. It focuses on the operational experience of existing facilities, achievements in heavy-ion accelerator physics and technology, progress on the implementation of new projects and infrastructure upgrades, trends in the proposal and design of heavy-ion accelerators, as well as their main systems and components. A tour of the ATLAS facility at Argonne, including the Accelerator Development Facilities, is planned, as well as a one-day, add-on workshop on the status and techniques for production of high-mass radioactive-ion beams. For further information, see www.phy.anl.gov/hiat12.

The **International Workshop on Neutrino Factories, Super Beams and Beta Beams**, NUFAC 2012, will take place on 23–28 July, in Williamsburg, Virginia. The NUFAC workshops are now established as one of the important yearly neutrino conferences with an emphasis on future

projects. The main goal is to review the progress – and share the challenges – in the studies of future neutrino-oscillation facilities that could discover and study the mass hierarchy of neutrinos, CP violation in the leptonic sector and possible new phenomena. The workshops combine the skills of experimenters, theorists and accelerator physicists. For further details, see <http://wwwold.jlab.org/conferences/nufact12/reg.html>.

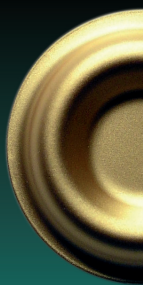
CORRECTIONS

An error occurred in the November 2011 issue in the distance from Fermilab to the Soudan Underground Laboratory (p28). This should be 730 km (not 370 km).

In the December 2011 issue, in the article "A bumper year nears its end" (p5), the 2011 data objective was revised upwards to 5 fb^{-1} (rather than 1.2 fb^{-1}) and by the end of proton running the LHC had delivered 5 pb^{-1} to ALICE (rather than 5 fb^{-1}).

Apologies to all concerned.

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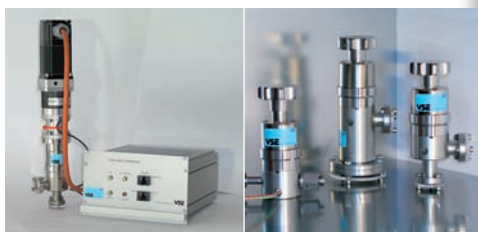
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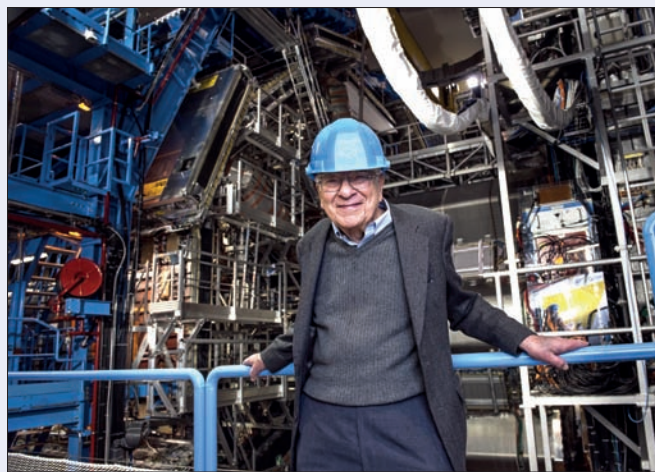
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VISITS



On 15 February, **Helge Reinhold Braun**, left, parliamentary state secretary, federal ministry of education and research (BMBF), of the Federal Republic of Germany, was welcomed to CERN by the director-general, **Rolf Heuer** (here demonstrating the temperature-sensitive coffee mug that depicts the history of the universe). Braun toured the ATLAS underground experimental area and visitor centre, as well as the LHC tunnel, before meeting German staff at CERN.

Murray Gell-Mann, well known for proposing the quark model and as a recipient of the Nobel Prize in Physics in 1969, came to CERN on 23 January. During his visit he gave a theoretical physics seminar on decoherent histories in quantum mechanics. He also toured ATLAS – where he is seen here – and CMS. (For an interview with Gell-Mann, see <http://cdsweb.cern.ch/record/1421671>.)



NEW PRODUCTS

Highland Technology has announced the release of the V230 64-channel VME analogue input module. The V230 provides high channel-count data acquisition for dense monitoring applications. Data are presented in real time as a simple array of 64 values with no handshakes, interrupts or driver calls required. The 64 channels are individually programmable for both input range and filtering, with input ranges of ± 102.4 mV, ± 1.024 V or ± 10.24 V. For further details, tel +1 415 551 1700, e-mail info@highlandtechnology.com or visit www.highlandtechnology.com.

Micromech-Yaskawa has announced the Sigma-5 EtherCAT C that provides real-time Ethernet interface for an EtherCAT communication network. The SGDVOCA01A network module is an add-on board, which is compatible with the Sigma-5 series command option attachable amplifiers SGDVO with the communication protocol CANopen. The EtherCAT network

module offers a range of functions based on the IEC 61158 Type12, IEC 61800-7 CiA 402 drive profile. For more information, contact Karen Hicks, fax +44 1376 551 849 or see www.micromech.co.uk.

National Instruments Corporation has introduced the Multisim 12.0 with specialized editions for circuit design and electronics education. Multisim 12.0 Professional Edition is based on industry-standard SPICE simulation and is optimized for usability. Engineers can improve design performance to fit their applications by minimizing errors and prototype iterations with Multisim simulation tools that include both customizable analyses developed in NI LabVIEW graphical-system design software and standard SPICE analyses and intuitive measurement systems. For additional information, tel +44 1635 523 545, e-mail info.uk@ni.com, or see www.uk.ni.com.