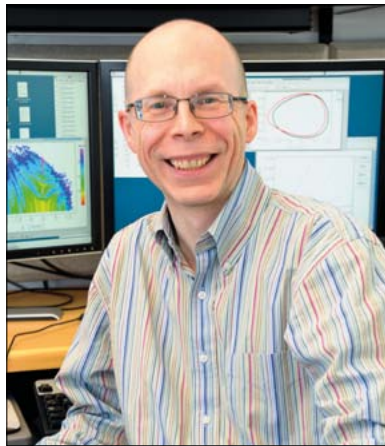


Faces & Places



Left to right: Prizewinners Shouxian Fang, Michael Borland and Hiroshi Imao. (Image credits: S Fang, R Fenner/APS, H Imao.)

AWARDS

ACFA and IPAC announce accelerator prizes

The Asian Committee for Future Accelerators (ACFA) and the fourth International Particle Accelerator Conference, IPAC'13, have awarded the ACFA/IPAC'13 Accelerator Prizes for outstanding and original contributions to the field. The awards, decided by the Prizes Selection Committee, chaired by Jia-er Chen of the National Natural Science Foundation of China, are to be presented at the conference in Shanghai on 13–17 May.

Shouxian Fang of the Institute for High-Energy Physics, Beijing, receives the prize with no age limit for outstanding work in the accelerator field. He led the team that constructed the Beijing Electron–Positron Collider (BEPC), China's first high-energy accelerator, and has contributed to the Shanghai Synchrotron Radiation Facility, the China Spallation Neutron Source and

the Chinese Accelerator-Driven Subcritical System for nuclear-waste transmutation, as well as to proton-therapy accelerators and to initiating the major upgrade of BEPC (BEPCII). He has also promoted accelerator-based science in China through extensive international collaboration and built up a solid bridge between China and other parts of the world in the accelerator field.

The prize for an individual with no age limit having made a recent significant, original contribution to the accelerator field, goes to Michael Borland of the Advanced Photon Source, Argonne, for his original contributions in creating the ELEGANT programme and its self-describing data-sets platform. These are widely applied in the design, simulation and analysis of circular accelerators, energy-recovery linacs and free-electron lasers. His algorithms, methods

and software have been adopted at many accelerator facilities around the world, and for numerous developments in the field of beam dynamics and non-linear optimizations.

The third prize, for an individual in the early part of his or her career, having made a recent, significant and original contribution to the field, goes to Hiroshi Imao of RIKEN for his realization of the next-generation charge-state stripper using recirculating helium gas. This stripper makes it possible to increase the intensity of uranium-ion beams by an order of magnitude at RIKEN's Radioactive Isotope Beam Factory and has had immense, worldwide impact on the field of heavy-ion accelerators. He also developed a compact and efficient positron accumulator that has led to the successful production of antihydrogen atoms in the ASACUSA experiment at CERN.

ASTROPARTICLE PHYSICS

Dark matter on the menu in Münster

The first meeting dedicated exclusively to dark-matter theory and experiment in Germany was held earlier this year at the

University of Münster. Made possible through the generous financial support of the Helmholtz Alliance for Astroparticle Physics (HAP), the conference – HAP Dark Matter 2013 – was co-organized by Michael Klasen of Münster and Klaus Eitel of the Karlsruhe Institute of Technology (KIT). The 100 participants included senior German dark-matter scientists, many postdocs and students, as well as experts from neighbouring countries such as Belgium, Denmark, France, the Netherlands,

Spain, Sweden, Switzerland and the UK.

The scientific programme aimed at a complete coverage of all aspects related to dark matter and ranged from astronomical observations through experimental searches to theoretical interpretations and tools. As the first speaker, Jürg Diemand of Zurich presented fascinating numerical simulations of galactic structures by the Via Lactea collaboration. Thomas Reiprich of Bonn and Justin Read of Surrey followed up with the prospects for galaxy-cluster cosmology

using X-ray telescopes, with determinations of the local dark-matter density from stellar kinematics, while Eva Grebel of Heidelberg gave an overview of dark-matter-dominated dwarf galaxies.

Experimental results were reported from: direct searches, for example, with the XENON experiment, described by Christian Weinheimer of Münster; indirect searches with the Fermi Gamma-ray Space Telescope, by Johann Cohen-Tanugi of Montpellier; and the LHC experiments, by CERN's David Berge, CERN. While none of these searches can yet conclusively provide positive evidence, some, as Thomas Schwetz-Mangold of Heidelberg explained, do leave room for speculation on relatively light dark-matter particles. Participants were also curious to see the preparations for the XENONIT experiment, visible during several laboratory tours offered by Ethan Brown of Münster.

With increasing experimental sensitivity and precision, the need for precise theoretical and numerical tools is now evident. This was addressed in talks by Manuel Drees of Bonn and Andrzej Hryczuk of Munich on the so-called Sommerfeld enhancement. Full next-to-leading order calculations, presented by Karol Kovarik of KIT, are integrated into programmes such as micrOMEGAs and DarkSUSY, described by Geneviève Belanger of Annecy and Torsten Bringmann



The HAP Dark Matter 2013 meeting drew 100 participants. (Image credit: W Hassenmeier.)

of Hamburg, respectively. Whether dark matter is supersymmetric, as discussed by Laura Covi of Göttingen and Béranger Dumont of Grenoble, or not, as Steen Hannestad of Aarhus, Andreas Ringwald, DESY, and many others argued, still has to be decided. This might be possible at a

second HAP Dark Matter meeting, which many of the participants eagerly demanded.

● For more about HAP Dark Matter 2013, see <https://indico.desy.de/event/hap-DM>. For more about the Helmholtz Alliance for Astroparticle Physics (HAP), see www.hap-astroparticle.org.

PUBLISHING

Progress bridges experimental and theoretical physics

In 1946, three years before he was to receive the Nobel Prize in Physics for “his predication of the existence of mesons”, Hideki Yukawa founded the journal *Progress of Theoretical Physics*. Over the years it published many important articles, mainly in theoretical physics, including several that led to the Nobel prize. Now the journal has taken on a new life, by incorporating experimental physics under the title *Progress of Theoretical and Experimental Physics* (PTEP).

The new journal, which is a joint venture between Oxford University Press and

the Physical Society of Japan, is fully open access and available only online. Its coverage continues on from its predecessor by including high-energy physics, nuclear physics, astrophysics and cosmology, together with mathematical physics and condensed-matter physics. Now, it also welcomes papers in experimental particle physics, nuclear physics and astrophysics, as well as beam physics, instrumentation and technology. Regular monthly issues began in January 2013, following on from a number of special issues published in 2012.

PTEP is an international journal and

welcomes the submission of papers from authors around the world, and as a new initiative places strong emphasis on the *Letters* section. It participates in the Sponsoring Consortium for Open Access Publishing in Particle Physics (SCOAP³) initiative, launched at CERN last October (CERN Courier November 2012). As a result, high-energy physics articles in PTEP will from 2014 be published open access in perpetuity and free of charge.

● For more about *Progress of Theoretical and Experimental Physics*, see <http://ptep.oxfordjournals.org>.

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VISITS



Carmen Vela Olmo, the Spanish state secretary of science, development and innovation, toured the LHC tunnel during her visit to CERN on 4 April. She was also able to see the ATLAS visitor centre and underground area, as well as meeting the director-general and Spanish physicists and staff members at CERN.

The deputy prime minister of the Russian Federation, **Olga Golodets**, came to CERN on 5 April. In addition to meeting the director-general, she toured the ATLAS control room and underground experimental area, the LHC tunnel, the computer centre and the Antimatter Decelerator. She also met members of CERN's Russian community at CERN.



Shri Sudini Jaipal Reddy, of the Indian ministry of science and technology and ministry of earth sciences, centre seated, met members of the Indian community at CERN during a visit on 8 April. He toured the CMS control room and underground experimental area, as well as the ALICE underground experimental area and the LHC superconducting test hall.

ARTS AND SCIENCE

Collide@CERN–Geneva prize awarded to film maker

CERN and the City and the Canton of Geneva have awarded the second Collide@CERN–Geneva prize to the 47 year old film maker Jan Peters, for his proposal to explore the world of CERN from a highly personal perspective. Peters has divided his time between Switzerland and his native Germany for many years. An artist and film maker, he is known particularly for personal documentaries charting his own life and his films have won prizes at festivals around the world. During his residency at CERN, he intends to address the links between science and art, politics and philosophy. In awarding him the Collide@CERN–Geneva prize, the jury recognized Peters as someone “who makes profoundly personal films that probe and dissect reality”. Peters is expected to take up his three-month CERN residency in autumn 2013. He is the second winner of the Collide@CERN–Geneva award, which is part of a three-year partnership between CERN and the City and the Canton of Geneva.

MEETING

NA-PAC'13, the 2013 **North American Particle Accelerator Conference**, will take place on 30 September – 4 October in Pasadena. It will bring together scientists, engineers, students and industrial exhibitors for an information-sharing experience focused on technology. Students are encouraged to find out more about the grant programme and to apply to present their work in the special student poster session that will take place during registration on 29 September. There will also be an industrial exhibition during the first three days of the conference. For further details about deadlines for registration and all other aspects, see www.napac13.lbl.gov.

CORRECTION

In the text in “New boson’s mirror image looks like the Higgs” (*CERN Courier* January/February 2013 p10) the reference to the colours in figure 2 were unfortunately reversed. It should of course read: Figure 2 shows the expected likelihood for a genuine scalar Higgs boson (pink) and a pseudo-scalar boson (blue). Apologies for any confusion.

OBITUARIES

Henri Cornille 1929–2013

The French theoretical physicist, Henri Cornille, passed away on 23 February, aged 83.

Henri was a typical product of the French education system before 1968, i.e. an elitist system in which someone of modest origin could climb the ladder provided that he was good and courageous. Henri followed the *troisième cycle* organized by Maurice Lévy at the Ecole Normale but it was Roger Nataf (who, like Lévy, was from North Africa) at the Institut de Physique Nucléaire, Orsay, who realized that he had real talents. Nataf sent Henri to work with me at CERN, where we had a fruitful collaboration in the fields of potential scattering and high-energy scattering. Our best result, I believe, was the proof that the ratio of the widths of the diffraction peaks for particle–particle scattering and for particle–antiparticle scattering was approaching unity asymptotically. He was also the inventor of the “Cornille plot”, which gives the allowed domain for total and elastic cross-sections when they behave like powers of $\log s$ for large energies.



H Cornille. (Image credit: Cornille family.)

Henri never recoiled in the face of difficulty. This is well illustrated by his work with Jean-Michel Drouffe on phase-shift

analysis for scattering amplitudes with maximum angular momentum $L=4$. In this context, one problem that is well posed but not yet completely solved is that given a differential cross-section at an energy such that only elastic collisions can take place, what are the corresponding scattering amplitudes or, equivalently, the phase shifts corresponding to the various partial waves? Are there several solutions except for changing the sign of all phase shifts? JH Crichton has shown that there are cases where there is a two-fold ambiguity. Many theoreticians have worked on this problem and obtained some results, in which more than two solutions have never appeared. In my opinion, the work of Cornille and Drouffe is the most convincing indication that there are never more than two solutions.

After officially retiring, Henri was given the status of emeritus – something rare in France – and continued to work at Saclay. In all of his work, he showed intellectual integrity, perseverance, and imagination. We shall miss him.

● *André Martin, CERN.*

Peter Norton 1945–2013

Peter Norton, a physicist at the Rutherford Appleton Laboratory (RAL) in the UK, passed away on 2 February.

Peter graduated from Jesus College Oxford in 1966 and joined Arthur Clegg's group at Oxford University working at the Rutherford Laboratory (later RAL) to study elementary particle physics for his DPhil. He then joined the Daresbury Laboratory, where he worked on the PEP experiment to study the details of electroproduction reactions. Such details began to be clarified with the development of the quark model of elementary particles. Central to this understanding were the classic deep-inelastic scattering experiments done at SLAC in the late 1960s.

In the 1970s, Peter was a founder member of the European Muon Collaboration (EMC) formed to extend the studies of deep-inelastic scattering to the higher energies available at CERN. The purpose of EMC was to probe the quark structure of the nucleon. Peter was responsible for the muon drift chambers, which at that time were among the largest chambers ever made. His sharp intellect



Peter Norton. (Image credit: E Loutzenhi.)

and ability to spot confused thinking made invaluable contributions to the experiment's major discoveries of the EMC effect and the spin deficit in the proton.

In the 1980s, he joined the ALEPH collaboration and played a significant role in cementing together a larger UK university involvement in the experiment. This consortium constructed the endcaps of the electromagnetic calorimeter. Peter's calm approach to the design and testing of the huge modules with his colleague Mike Edwards proved invaluable. Their insistence on maintaining a strict testing regime during construction – despite the considerable time pressures – led to an excellent apparatus that worked flawlessly throughout ALEPH's lifetime.

Following ALEPH, Peter was involved in the creation of one of the embryonic groups keen to do experiments at the LHC. Realizing the value of naming the experiment with the first letter of the alphabet, he invented “ASCOT”, which later joined “EAGLE” to become the ATLAS collaboration. He was deeply involved in the conception of the experiment and played a significant role in the design of the superconducting toroid-magnet system. Here, he played a pivotal role linking the

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physics and engineering teams. He retired before the experiment took data but the recent announcement of the discovery of a particle with the hallmarks of the Higgs boson gave him great pleasure. In the final

years of his career, as head of a small group at RAL developing new ideas, he was instrumental in re-launching accelerator R&D in the UK, also editing the influential report *Accelerator R&D for Particle Physics*

that started the initiative.

Peter was a good man and the world is a poorer place for his passing. He is survived by his wife Yve and daughter Eleanor.

● *His friends.*

NEW PRODUCTS

Heason Technology has added new precision slip ring assemblies and rotary joints to its portfolio, including complete assemblies for rotary-to-stationary transmission of electrical signals, video signals, field buses etc. and power up to 50 A and beyond. The precision devices include long-life gold and other precious-alloy rings and brushes, with up to 96 circuits in standard designs that span miniature capsule units and large-diameter packaged designs – some with through holes. For more details, contact Jon Howard, tel: +44 1403 755800, e-mail jhoward@heason.com or see www.heason.com.

Keithley Instruments Inc has enhanced its Automated Characterization Suite (ACS) software for its high-power semiconductor characterization solutions. The ACS package is optimized for automated wafer-level

parameter-test applications, including automated characterization, reliability analysis and known good die testing. The ACS V5.0 update specifically leverages the capabilities of Keithley's Model 2651A (high current) and 2657A (high voltage) System SourceMeter SMU instruments. For details, visit www.keithley.com/products/semiconductor/characterizationsoftware.

Resolve Optics has released the ultracompact Z10 HD Mini Zoom Lens – with 10X, C-mount lens-design – designed to complement small-profile HD cameras. Floating-cell technology allows the moving cells to be compact and light, allowing smaller motors to be used to drive the movements. Low-dispersion glass keeps the lens compact while still providing HD quality. The design also allows for an f/1.8 aperture to

be maintained throughout 80% of the zoom travel with a minimum aperture of f/2.8. For further information tel: +44 1494 777100, e-mail sales@resolveoptics.com or visit www.resolveoptics.com/330-000.htm.

The **Siemens** Industry Automation Division's range of temperature sensors now includes the SITRANS TS family. These resistance thermometers and thermocouples are designed for universal use in a modular design that offers a range of sizes, materials, sensors and transmitters. The SITRANS TS100 and TS200 series are available as cable and compact thermometers. The SITRANS TS500 line is designed for applications with low to high process-stresses. For further information contact Peter Jefimiec tel: +49 (911) 895-7975, e-mail peter.jefimiec@siemens.com or see www.siemens.com/sitranst.

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