

Report from the organizers

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REPORT

Report from the organizers

LT25 Chairman**Peter Kes**

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The 25th International Conference on Low Temperature Physics (LT25) was hosted by the Kamerlingh Onnes Laboratorium of the Leiden Institute of Physics and held in the RAI Convention Center in Amsterdam, The Netherlands, 6–13 August 2008. It was the second time that the Kamerlingh Onnes Laboratory had the privilege of organizing an LT conference. In 1958, at LT6, 50 years of liquid helium temperatures were commemorated; in 2008 we celebrated the 100th anniversary of the remarkable achievements of Heike Kamerlingh Onnes and his collaborators in Leiden. In 1958 there were 323 participants and 145 papers appeared in the proceedings; in 2008 these numbers increased to 1390 participants and 900 submitted papers, of which eventually 849 were accepted. This large participation required adequate conference and housing facilities. These could not be found in Leiden, but were conveniently available in Amsterdam.

The triennial international low temperature conferences are organized under the auspices of the international union of pure and applied physics (IUPAP) through commission C5 on low temperature physics. It is the most important global meeting that brings together the international scientific community in the broad field of low temperature physics. Because the meeting is held only every third year the 11 plenary and 22 half-plenary talks (of 45 or 30 min) generally provide an overview of important new discoveries over the last few years, whereas the 161 short oral presentations (20 min) are mainly focused on very recent and ongoing developments. Since the field is broad, embracing a large section of condensed matter physics, the program is divided into five parallel program lines:

- A. Quantum gases, fluids and solids.
- B. Superconductivity.
- C. Quantum phase transitions and magnetism.
- D. Electronic quantum transport in condensed matter.
- E. Cryogenic techniques and applications.

This distinction was used both to group the 1625 accepted abstracts, and the short-oral and poster presentations; the number of oral sessions per program line was made in proportion to the number of accepted abstracts per category (A: 323, B: 526, C: 404, D: 276, and E: 96, about the same distribution as at previous LT conferences, e.g. LT22 in Helsinki). Also the papers appearing in the on-line part of the proceedings are grouped according to the same classification. From the 877 submitted papers 826 were accepted, 41 rejected, and 10 were withdrawn. In the five poster sessions altogether 1479 posters were presented (A: 311, B: 463, C: 370, D: 249 and E: 86).

Two special evening sessions were organized to address (very) recent developments. In the first place there was a romp session about the surprising discovery of high temperature superconductivity in iron-based compounds with seven rounds of about five short presentations concluded with a ten min discussion each. In a parallel session the concern about the demand for and price of liquid helium was discussed in relation to future trends in cryocoolers which may considerably reduce the need for liquid helium. In an outreach evening session, open to the general public, we had two distinguished speakers: Dr Philippe Lebrun (CERN, Geneva, Switzerland), who talked about the cryotechnology of the Large Hadron collider at CERN and Professor Allan Griffin (University of Toronto, Canada) about the intriguing history of superfluidity.

The centenary of liquid helium and the birth of low temperature physics were celebrated at the conference excursion to Leiden on 10 August 2008. Lack of space forced us to limit the number of participants to 643, but many others went on their own initiative. They could attend three historical lectures in the former Kamerlingh Onnes Laboratory, and visit several museums where special expositions related to '100 years of liquid helium' were arranged. The conference dinner in the center of Amsterdam on Monday evening was attended by 555 people.

Traditionally, at the opening session of the LT conferences time is reserved for prize ceremonies.

- The recipients of the most important prize in low temperature physics, the Fritz London Memorial Prize 2008, were Yuriy M Bunkov (Institute Néel, Grenoble), Vladimir V Dmitriev, and Igor A Fomin (both Kapitza Institute, Moscow). They got the prize for their discovery and understanding of the 'phase coherent spin precession and spin superfluidity of $^3\text{He-B}$ '.
- The Simon Prize 2008 of The Physical Society went to Yasunobu Nakamura and Jaw-Shen Tsai (NEC Laboratories, Tsukuba) for their 'pioneering demonstration of quantum coherent behaviour in a macroscopic object and for their subsequent explorations of quantum coherent physics in a series of novel superconducting devices'.
- The Nicholas Kurti European Science Prize (sponsored by Oxford Instruments) was awarded to Lieven Vandersypen (Delft University of Technology) for his 'ground-breaking work on the coherent control of nuclear and electron spins, with possible application to quantum information processing'.
- Finally, the first IUPAP Young Scientist Prizes in Low Temperature Physics went to Kostya Novoselov (University of Manchester) for his 'contribution in the discovery of graphene and for pioneering studies of its extraordinary properties', to Dai Aoki (Tohoku University, Sendai) for his 'discovery of novel heavy fermion superconductivity in actinide compounds', and to Viktor Tsepelin (Lancaster University) for 'the development of new experimental techniques and key discoveries in the fields of ^3He crystals and quantum turbulence'. All prize recipients got the opportunity to present their work in an invited oral contribution.

As is common practice nowadays all announcements, registrations, paper submissions and communications regarding program and practical matters were done electronically, either by email or via the internet. Nevertheless, the program book was still printed and handed out to all participants at registration and they received an electronic version on a USB stick as well. The stick also contained all of the submitted (but not yet refereed) papers received before 15 July 2008. The final decisions about the scientific program were made in Leiden at a meeting of the program committee members in April 2008. This turned out to be a very efficient and pleasant procedure. The decision to split up the proceedings into two parts had been taken much earlier in consultation with the Chair of C5 and the IUPAP. In order to optimize impact factors it has become common policy of publishing companies to publish proceedings of big conferences like the LT conference in special on-line journals (open access), such as *Journal of Physics: Conference Series*. We were pleased with the possibility to publish the most important contributions to the program of LT25 in a special issue of *Journal of Physics: Condensed Matter*. The latter will not only appear in print, but will also be available on-line for a period of one year from publication.

Organizing a conference like LT25 could not have been accomplished without the help of many enthusiastic and dedicated colleagues. I like to extend my sincere thanks to all of them, but above all, to my colleagues of the organizing committee.