

REPORT ON THE CRYOCONFERENCE 2010

ACADEMIC ASPECTS

The Cryoconference 2010, the last event of the Marie Curie Advanced Cryogenics Course (Cryococourse, <http://cryocourse.grenoble.cnrs.fr>) took place in the hotel Mýto, in village Mýto pod Ďumbierom (Low Tatras mountains), Slovakia from 9 to 15 September 2010. The organization of the Cryoconference 2010 has been under way since beginning of 2010 under the responsibility of a local organizing committee from Joint Centre of Low Temperature Physics of P.J. Šafárik University in Košice and Institute of Experimental Physics SAS in Košice. A conference website was launched in February 2010 (<http://www.saske.sk/CRYO2010/>), and the possibility to attend the Cryoconference 2010 was announced to the largest possible physical (low temperature) community over Europe via the web page of the Marie Curie Research Training program, by means of personal announcements sent to the leaders of low temperature laboratories over EU and non EU countries, via international web pages and forums. Applications including full research training records and copy of relevant diploma of applicants were duly received and examined by the International Advisory Committee of Cryocourse. The International Advisory Committee of Cryocourse very carefully examined the applications, analyzed curricula of applicants as well as their future professional possibilities in the field of low temperature physics, and in the end of selection process 52 applications were accepted.

The scientific program (see below) including the topics of overview lectures were consulted with Chairman of Cryogenic Course Dr. Henri Godfrin in cooperation with International Advisory Committee with aim to cover as broader range of low temperature techniques and physics as possible and to present the current highlights and achievements in this field of physics. Selection of the overview lecturers was carried out via exchange of e-mails.

All conference participants arrived to Košice city (University Rectorate served as a Meeting point) and Cryoconference started in Košice on September 9th, 2010 with late lunch and a short city tour. After that, all participants were transported to the conference site by bus departing from P.J. Šafárik University Rectorate.

Scientific program of the conference (see attachment) was consistent with rules of the Cryocourse conferences: daily two overview talks were given to the students by a recognized experts in low temperature physics, and after that there were presentations (talks) given by students. Fifty participants gave their 20 minutes talk. In such way they obtained personal experience with presentation in front of an audience, some of them for the first time ever. Evening sessions were devoted to the discussions about topics presented given day. In particular, evening discussion session on "Quo vadis low temperature physics", chaired by Prof. George Pickett, FRS was really very interesting. Students spoke about their motivation, everyday problems they have to force to, personal experience with PhD work, etc.

The Cryoconference committee also organized a prize contest, thanks to the sponsorship of the company Oxford Instruments Plc., which provided 350 Euros for three prizes for the best talks given by students. An independent prize committee, formed by H. Godfrin and A.T.A.M. de Waele, made a very close follow-up of all talks of the Cryoconference, and selected three participants, on the basis of the quality of the presentation and the induced discussion, the quality of the research work and above all the scientific enthusiasm demonstrated by the participant. The Oxford Instruments Prize was given to Audrey Grockowiak (France), Daniel Rothfuss (Germany), Torben Peichl (Germany).

Many relevant fields of low temperature techniques and physics were covered, so that the students could get an overview of the most active fields and the hottest topics. Technical reviews and developments were given by experts in metrology, new cooling methods, novel thermometry and new measurement devices. Moreover, discussions were held about quantum liquids and solids, quantum properties of matter close to absolute zero, quantum criticality, several aspects of superconductivity, including multiband physics, molecular chemistry, magnetism, Bose-Einstein condensation of magnons, quantum turbulence, quantum computation and q-bits, etc.

The hotel in Mýto pod Ďumbierom provided us with a very comfortable and enjoying atmosphere, which strongly favored contacts among students. These contacts were enforced by an excursion and dinner, which was carried out under the expenses of additional financial support obtained by the local organizing committee. The excursion and dinner were a cultural event that acted as an excellent companion to physics and fostered team-building.

Indeed, we can state that the Cryoconference has established connections among the participants, which will last for a long time. This first networking array, which probably includes some of the future leaders in the field, will allow students to collaborate in future.

ADMINISTRATIVE ASPECTS

Conference started in Košice on September 9th 2010, where organizers provided transport from airports and railway station to a meeting point – Rectorate of P.J. Šafárik University. After later lunch and a short tour via historical part of Košice city, organizers provided transport for all participants to the conference site by bus. The conference program was carried out without changes.

Among the 52 students and young scientists, 40 were group 1 participants, 10 were group 2 participants and 2 were non-eligible. The attendance of 11 third-country participants (21% of all accepted applications) was supported by Marie-Curie program.

P.J. Šafárik University supported the attendance of 5 third-country (2 of them non-eligible) participants and one of the eligible participants canceled the attendance shortly before the event, resulting in 46/51 ratio of Marie-Curie funding from all costs (except the travel expenses of 46 participants eligible for full Marie-Curie support).

Distribution of participating students and young scientists by countries was as follows: Argentina – 2, Colombia - 1, Czech republic – 2, Dem. Rep. of Congo – 1, Finland - 5, France - 7, Germany – 6, Italy - 3, Lebanon - 1, Mexico - 1, Nepal – 1, Russia - 2, Ukraine - 7, United Kingdom - 2, Spain - 4, and Slovakia - 7.

Third countries were in total 30 %, and there were no countries with more than 30 % participants.

In total, there were 6% of women participants among the students. This number is well below the objective of 40%, but it is very difficult to manage it as this possibly represents the present gender distribution of the young scientists in low temperature physics, all women applications were accepted.

The rest of the participants (11) were senior scientists, some of them acting both as lecturers and organizers as well.

On the conference last day, September 15th, 2010, organizers provided transport for all participants back to Košice by bus, to the airport and railway station. Participants having their flights and trains later afternoon were invited to visit Center of Low Temperature Physics, where exhibitions and tours through the low temperature laboratories of the Center were prepared and were associated with discussion with the members of the Center.

Cryoconference 2010 programme

10.09.2010 Fri	11.09.2010 Sat	12.09.2010 Sun	13.09.2010 Mon	14.09.2010 Tue
Nanophysics at Cryo J.G. Rodrigo O. Dobrovolskiy T. Peichl	Refrigeration A.T.A.M. de Waele M. Kiveni M. La Mantia L. Pattavina	Frustrated and strongly correlated electron systems I V. Fritsch I. Čurlík P. Giraldo P. Subedi D. Rothfuss	Quantum fluids and solids I P. Skyba P. Hunger A. Salmela Y. Vekhov I. Degtyaryov K. Nasyedkin J. Rysti V. Rubanskiy	Quantum fluids and solids I O. Birchenko C.R. Lawson A. Sultan S. Rubets P. Williams A. Senin F. Bonnet M. Človečko F. Souris
Spectroscopy of superconductors I P. Samuely M. Šindler M. Leroux	Thermometry C. Enns J.-H. Storm			
Lunch	Lunch	Lunch	Lunch	Lunch
Spectroscopy of superconductors II D. Costa Milan Y. Fasano F. Horváth A. Grockowiak J. Girovský	Low temperature detectors J. Elbs A. Bidaud T. Pérez Castañeda C. Pies D. Slobinsky S. Ventura Gonzáles M. Schmidt	Excursion to cave 13:30-16:00	Turbulence and vortex state L. Skrbek J. Hosio S. Babuin P. Heikkinen L. Komendová	Quantum instrumentation M. Grajcar A. Kapustin C. Sabater J. Julin P. Neilinger J. Augusto Galvis
Dinner	Dinner	Frustrated and strongly correlated electron systems I F. Aslan M. Botko	Dinner	Dinner
Round-table discussion chair: Pickett G.R.		Nano-coolers and nano-thermometry J. Pekola		