

C5 Activity Report for the IUPAP Council and Commission Chairs Meeting October 2017-October 2018

Officers/Members 2017-2020

Chair	William P. Halperin	USA
Vice-Chair	Pertti Hakonen	Finland
Secretary	Naoto Nagaosa	Japan
Members:	Xianhui Chen	China
	Juhn-Jong Lin	Taiwan
	Hermann Suderow	Spain
	Viktoria Bekeris	Argentina
	Maxim Kagan	Russia
	Philipp Gegenwart	Germany
	Richard P. Haley	UK
	Peter Skyba	Slovakia
	Floriana Lombardi	Sweden
	Ok Hee Chung	Korea
	Pratap Raychaudhuri	India
Assoc. Mem.	Darius Kaczorowski	Poland

Activity Report

This review covers the period October 2017 – October 2018 with a summary of the immediate previous 12 month period.

1.0 Activity Previous Period April 2017 – October 2017

1.1 Conferences Organized and Endorsed

Type A

28th International Conference on Low Temperature Physics (LT28), Gothenburg, 9-16 August 2017. 904 registrants, 800 abstracts submitted, 25 exhibitors, and 2 major sponsors. The demographics for the largest registrations include 270 from Japan, 80 from Germany, 80 from USA, and 65 from Sweden. At least 10% of delegates were women: this fraction was similar for senior delegates and student delegates. 8 Plenary talks (0 women), 25 half-plenary talks (5 women), 64 Invited talks (>9 women). Chair: P. Delsing, Co-Chairs: M. Fogelström, J Bylander, F Lombardi (one woman). For more details see <http://www.lt28.se/> The Programme Committee was 28% women, and the International Advisory Committee 14.5% women. Financial support was received by 13 delegates (4 women). IUPAP C5 also sponsored poster awards at the meeting.

A scientific summary of the meeting was prepared by IUPAP C5 and is included in the conference proceedings: Journal of Physics: Conference Series.

Type B

ULT2017, Frontiers of Low Temperature Physics. August 17-21 2017, Heidelberg, Germany.

180 registrants (21 women) from 21 countries. 27 invited talks (2 women), 28 contributed talks (1 woman), 106 posters. Three poster awards (1 woman).

Chair: C. Enss, Heidelberg

This conference, which was a satellite of LT28, brought together a broad community of researchers to forge links between different experimental communities, with a common interest in ultralow

temperature physics, from fundamental science to techniques and applications. Topics included; superfluid ^3He and topological matter; heavy fermions; disordered quantum systems; low dimensional systems; model systems for quantum turbulence; superconducting quantum technology; nanomechanical systems; cooling nanoelectronics into the microkelvin regime; cryogenic detectors for far-infra-red astronomy, determination of neutrino mass, dark matter searches.

Endorsed Conference

Mesoscopic Transport and Quantum Coherence 2017 (QTC 2017). August 5-8 2017, Espoo, Finland. 175 registrants (14 women) from 20 countries, 22 invited talks (1 woman).

Chair: Mika Sillanpaa.

This conference, which was a satellite of LT28, presented the latest research, ongoing development and applications related to quantum effects in electron transport, superconducting qubits and hybrid circuits, quantum thermodynamics, circuit QED, cavity optomechanics, topological and two dimensional materials.

1.2 Commission Meetings

Commission C5 met at LT28 in August 2017. Subsequent business has been conducted by e-mail and will continue in this mode until the next face-to-face meeting in 2020 at the next Low Temperature Conference. The organisers/site of LT29 in 2020 has been settled and work is in progress to identify the next Low Temperature Conference (LT30, Type A) in 2023.

1.3 C5 Sponsored Prizes Awarded

IUPAP C5 Young Investigator Prize:

Dr. Clifford Hicks (Max-Planck Institute for Chemical Physics of Solids, Dresden, Germany),

Vlad Pribiag (University of Minnesota, Minneapolis, USA)

Fritz London Memorial Prize:

William Halperin (Northwestern University, Evanston, Illinois USA), James Sauls (Northwestern University, Evanston, Illinois USA), Jeevak Parpia (Cornell University, Ithaca, NY USA)

Simon Memorial Prize:

Professor Louis Taillefer (University of Sherbrooke and the Canadian Institute for Advanced Research, Sherbrooke Canada)

2.0 Activity Current Period

2.1 Sponsored Conferences this Period

Type B

QFS2018, International Symposium on Quantum Fluids and Solids, July 25-31, Tokyo, Japan. This conference was held on the Hongo campus of the University of Tokyo, Ito Center. It was the 23 regular conference in the series on Quantum Fluids and Solids dating back to 1975 in various countries Czech Republic(1), France(2), Germany(1), Italy(1), Japan(3), Russia(1), UK(1), USA(13) in Europe, Asia, and the Americas. For QFS2018, there were 255 registrants, 52 invited talks, and 147 poster presentations with four prizes for best posters. The conference organizers were *Conference Chair*: Hiroshi Fukuyama (Univ. Tokyo), *Conference Vice-Chair*: Makoto Tsubota (Osaka City Univ.); *Organizing Committee*, Hiroshi Fukuyama (chair), Makoto Tsubota (vice chair), Seiji Higashitani, Koichi Matsumoto, Shinichi Ohkoshi, Yutaka Sasaki, Keiya Shirahama, Masaru Suzuki, Takeo Takagi; *Program Committee*, Makoto Tsubota (chair), Hiroki Ikegami, Takeshi Mizushima; *Publication Committee*: Takeo Takagi (chair), Hyoungsoon Choi; *Local Organizing Committee*: Hiroshi Fukuyama (chair), Tomohiro Matsui, Masashi Morishita, Satoshi Murakawa, Sachiko Nakamura.

The 12 main conference topics were: Topological Quantum Fluids, Qubits and Quantum Information, Superconductors, Quantum Turbulence, Superfluid He-3, Superfluid He-4, Quantum Solids, Spin Liquids and Magnetism, Cold Gases, Neutron Stars, Fluids in Nanopores, Novel Techniques

2.2 Anticipated Sponsored Conferences

Type A

29th International Conference on Low Temperature Physics (LT29) August 16-22, 2020, Sapporo, Japan

About 1,200 participants

Co-Chair: Naoto Nagaosa and Yoshiteru Maeno

This proposal was approved by C5 at its meeting at LT28. It will be submitted for approval for Type A sponsorship to IUPAP in due course.

Type B

International Conference on Quantum Fluids and Solids (QFS 2019)

August 7-13, 2019, University of Alberta, Edmonton, Canada

Chairs: John Beamish, John Davis

This proposal was approved by C5 following recommendation by the QFS steering committee (in August 2017) and will receive consideration for support by C5 in due course.

Type B

ULT2020, Frontiers of Low Temperature Physics. August 24-27 2020, Sapporo, Japan.

Chair: Keiya Shirahama, Keio University

This conference, will be a satellite of LT29 (Type A) and will cover topics similar to those listed above for ULT2017 expanded to include new subjects of topical interest, especially on quantum information science. The number of anticipated attendees is ~200.

William Halperin, C5 chair

October 2018