

C2 - COMMISSION REPORT 2016

Report to IUPAP Council

Symbols and Fundamental Constants are fundamental elements for modern science and technology. C2 commission is working to guarantee the correct use and to supply motivation and investments in areas that needs to be consolidated and to improve.

Member's composition: Chair: **Vanderlei Salvador Bagnato** (Instituto de Física de São Carlos -Universidade de São Paulo), **ViceChair: William Phillips** (National Institute of Standards and Technology), **Secretary: Feng-Lei Hong** (Department of Physics -College of Engineering Science Yokohama National University), Members: **Ramesh Chandra Budhani** (, National Physical Laboratory- New Delhi), **Michael de Podesta** (National Physical Laboratory-Teddington), **Gerald Gwinner** (Department of Physics and Astronomy-University of Manitoba), **Marc Himbert** (LNE-INM), **Jinhee Kim** (Korea Research Institute of Standards and Science), **Michael Krystek** (Physikalisch-Technische Bundesanstalt), **Andre Luiten** (University of Adelaide), **Antti Manninen** (Centre for Metrology and Accreditation (MIKES), **Dr Martin Milton** (BIPM), **Alexander Potekhin** (Department of Theoretical Astrophysics-Ioffe Physico-Technical Institute), **Xing Zhu** (School of Physics-Peking University)

Meetings : There was no meeting of the whole commission for the period of this report. Limited resources makes difficult to hold a regular annual meeting for this Commission. There was , however many information exchanges between commissions members as well as between commissions. The proposal is to use regular meeting taking place within the Atomic, Molecular and Optics Community, often with the presence of many of the members of C2, to hold small meeting to debate relevant topics for the C2 commission. Members will send to the chair of the commission their planned participation in meetings in order to be organized a schedule of partial meetings.

Awards:

IUPAP Young Scientist Prize in Fundamental Metrology. Prizes in Fundamental Metrology to the below recipients in recognition of their outstanding contribution to the areas of physics within the remit of the Commission. **Dr. Samuel Lara-**

Avila, Chalmers University of Technology, Sweden; and **Dr. Stefan Ulmer**, RIKEN/CERN

Proposal classify the radian as a base unit in the SI - Conducted by P. Mohr and W. D. Phillips, the proposition is that SI be modified so that the radian is a base unit. It is proposed that angles be considered to have "dimension" and therefore be reclassified as a base unit. That shall promote standardization of angles and phases in many quantities.

Planning for a diffusion activity : The importance of units, fundamental constants and symbols is well recognized in all levels of education. Pre-university students and undergraduates have little information about the wonderful science behind fundamental constants, symbols and units. We shall start to put together a booklet and a movie to be available internet with the title " The Science behind fundamental constants and the unit system" .The text and movie shall have contribution to all members and will be presented in three different languages. The plan is to present such activity on the General meeting of 2017. The first material shall be delivered in November 2016.

Discussion on the determination of Gravitational G constant (Stephan Schlamming)- The current state of high precision results on G is unsatisfying. The data points are statistically inconsistent with each other. An expansion factor of 6.3 would need to be applied to each experiment to make the data set statistically consistent. This is an unacceptable situation for the experimenters, who work hard to obtain the smallest reasonable uncertainty. However, there is a silver lining. The IUPAP working group on G is helping to solve the inconsistency problem. As a first step, one G experiment has been shipped across the Atlantic for a second measurement campaign. The NSF is encouraging new researchers to get into the field. And completely different methods, like atom interferometry, are recently coming online for G measurements. In addition, the International Committee for Weights and Measures has established a framework for National Metrology Institutes to provide traceability to the SI at the highest level for laboratories engaged upon determinations of G .

Literature in revision: The “Red Book” and recommended sources of information SYMBOLS, UNITS, NOMENCLATURE AND FUNDAMENTAL CONSTANTS IN PHYSICS (Edition of 2010) is now under revision for a new edition. Comments shall be done during the October meeting in Taipei

COMMISSION ON STATISTICAL PHYSICS (C3) REPORT

Report on the work of the C3 committee during 2015-2016.

The C3 committee for Statistical Physics is responsible for running the tri-yearly event of Stat Phys, which took place 26 times so far, with the average participation of about 1000 physicists in each such event. The event is moved every three years from continent to continent, with the last one (2016) taking place in Lyon, France, the previous one (2013) in Seoul, Korea, and the previous one (2000) in Australia. During the Stat Phys conference the C3 committee also gives the Boltzmann Medal to outstanding Statistical Physicists that are chosen by vote of the committee members and the previous medalists. In addition, in the last three meetings we also awarded Young Scientists Prizes to highly promising younger colleagues.

During the event of Stat Phys the C3 committee gets together for its “plenary” meeting that among other things is used to evaluate proposals for hosting the next Stat Phys meeting. In Lyon we have selected the proposal of Buenos Aires, Argentina, for the next venue of the event.

The minutes of the meeting of the C3 committee in Lyon are attached to this report as appendix 1.

In appendix 2 we attach the report on the highly successful Stat Phys 26 in Lyon.

Itamar Procaccia, Chair,

The C3 Committee for Statistical Physics

Appendix 1: Minutes of the meeting of the C3 Commission held on Wednesday 20 July 2016 at 2 pm during STATPHYS 26 in Lyon, France

The following members were present:

Chair: Itamar Procaccia
Vice-Chair: Julia Yeomans
Secretary: Rahul Pandit
Lucilla de Arcangelis
Mohammad Reza Ejtehadi
Erwin Frey
Doochul Kim
Jose L. Mateos
Maxi San Miguel
Masaki Sano
Lei-Han Tang

The following members could not be present because of other professional commitments:

Daniel Bonn
Jean-Francois Joanny
Beate Schmittmann

The members of the C3 Commission discussed the following points.

1. Proposals for the next STATPHYS meeting. The following presentations were made:

A. Presentation for the next meeting in Argentina. See proposal for details.

B. Presentation for the next meeting in Mexico. See proposal for details.

C. Final decision: Argentina: Essentially Mexico has hosted STATPHYS before (in 2001) but Argentina has not hosted it so far.

2. Discussion of new members of the C3 Commission:

There was consensus on the following:

Chair: Rahul Pandit
Vice Chair: Maxi San Miguel
Secretary: Lucilla de Arcangelis

Other recommendations (for statistical physicists who might replace C3 Commission members who have served for two terms and who are not being nominated for the positions of Chair and Vice Chair):

Mogens Jensen (Copenhagen)
Kimmo Kaski (Finland)
Janos Kertesz (Hungary)
Tobias Galla (UK, Manchester) - Complex Systems (Econophysics) or Raymond Goldstein (UK, Cambridge)
Cristina Marchetti (USA, Syracuse)
Tetsuo Deguchi (Japan, Ochanmizu U) - Exactly solvable models
Thierry Dauxois (France, ENS, Lyon)
Shahin Rouhani (Iran)
Yariv Kafri (Israel, Technion)

The current Chair of the C3 Commission said he would discuss this with the scientists named above and also the IUPAP.

3. Support for Satellites and other meetings:

All recommendations have been accepted this year. It is suggested that we be active in getting support from IUPAP for other statistical physics meetings. The deadline for meetings in 2017 has passed already. The application deadline is June of a given year for a meeting in the next year.

4. The meeting ended with thanks to all the members of the Organizing Committee of STATPHYS 26, and especially Thierry Dauxois, the Chair of this Organizing Committee, all the members of the C3 Commission, and to the Chair of this Commission.

Appendix 2: Summary of the Stat Phys 26 meeting:

STATPHYS 26 the largest international conference in statistical physics, covering all aspects of statistical physics has been organized in Lyon, France from 18-22 July 2016. Organized every three years since 1945 by the International Union of Pure and Applied Physics (IUPAP), the conference covered a wide range of topics including traditional aspects of statistical mechanics, such as applications to hard and soft condensed matter, phase transitions, disordered systems and non-equilibrium physics, as well as emergent and modern applications such as turbulence, signal processing, complex systems and mathematics.

The conference took place at the Palais des Congrès de Lyon, a superb facility, including a main meeting room and a complete set of rooms for sessions, all within walking distance. It has hosted 1350 participants. In addition to many French delegates, the larger conference delegations were from Japan (119), Germany (94), United States (85), Italy (73) and South Korea (70). More than 50 nationalities were represented including participants from Georgia, Kuwait, New Zealand, Philippines or Uzbekistan.

The Boltzmann Medal for 2016 has been awarded during the Boltzmann Ceremony to Daan Frenkel and Yves Pomeau for their seminal contributions to Statistical Physics during their fabulous careers. Similarly, the Young Scientist Award for 2016 has been awarded during the conference to Lisa Manning and Martin Lenz, recognizing their outstanding achievements as scientists at an early stage of their careers in the field of Statistical Physics.

In the unanimous opinion of the participants, the level of plenary talks and different contributions was outstanding. The posters Sessions, hosting nearly 700 presentations, were also a great success. New scientific collaborations have emerged from these numerous presentations, or thanks to discussions during walks in the beautiful close by Parc de la Tête d'Or, or even thanks to the gala in the reception rooms of the City Hall.

A moving Human rights session was organized, as well as a memorial talk for the previous Boltzman medalist Leo Kadanoff who passed away a few months ago. We also maintained a very friendly atmosphere throughout the conference: from the enthusiastic reception by the dynamic team of volunteers, through to the discovery of Lyon traboules. There were two official

morning jogs around the Parc de la Tête d'Or and an intercontinental football tournament on Wednesday afternoon: team "Amerika" won the first Statphys World Cup!

Statphys26 has once again been a wonderful illustration of the international adventure that is Science. It has shown us that the mixing of backgrounds, approaches and origins is surely the way to go, taking us together towards uncharted territories and new discoveries. We are delighted that Statphys26 has ended in such a great success.

The C3 commission has announced that the next issue in the series, Statphys27, will be taking place for the first time in South America: Buenos Aires in Argentina.

Commission C4 – Astroparticle Physics

Reporting period: October 2015 – September 2016

1. Membership

Karl-Heinz Kampert (chair)	Germany (2008, 2011, 2014)
Sunil K Gupta (co-chair)	India (2011, 2014)
Adri Burger (secretary)	South Africa (2011, 2014)
Pierre Binetruy	France (2014)
Pasquale Blasi	Italy (2014)
Zhen Cao	China (2014)
Joakim Edsjö	Sweden (2014)
Jörg Hörandel	Netherlands (2011,2014)
Michael Kachelriess	Norway (2014)
Masaki Mori	Japan (2011, 2014)
Ryan Nichol	UK (2014)
Michal Ostrowski	Poland (2011,2014)
Mikhail Panasyuk	Russia CRs (2014)
Eun-Suk Seo	USA (2011,2014)

Steve Barwick (associated)	USA
Ilya Usoskin (associated)	Finland
Albert de Roeck (associated)	Belgium
Laura Baudis (associated)	Switzerland
Elisabete de Gouveia Dal Pino (IAU inter-union)	Brazil
Mark Lester (SCOSTEP inter-union)	UK

2. C4 Meetings and proposed new officers

For economic reasons, C4 conducts face-to-face meetings only during the International Cosmic Ray Conferences, which are attended by most of the members. The last of these meetings were held in The Hague in July/August 2015. All other meetings are conducted as phone conferences. Emails serve for the rest.

A phone conference was organised on May 10, 2016 and was attended by almost all commission members. Topics of discussions included preparations for ICRC2017, setting up a program committee (ISPC) for ICRC2017, defining a list of criteria for selecting locations of future ICRCs, IUPAP Newsletter, C4 web-pages, and next C4 officers.

For the next commission period, C4 proposes Sunil Gupta as the new chair, Adri Burger as the new co-chair, and Jörg Hörandel as the new secretary.

3. C4 Related Conferences

ICRC 2017, the type A conference of C4, will be conducted in Busan (South Korea) from July 13 to 20 under leadership of Prof. Il Park. C4 will act as IAC and it has conducted a list of candidates to serve on the International Program Committee (ISPC). The ISPC will be charged with selecting oral presentations from among the about 1500 abstracts that are typically submitted to the ICRC conference.

ICRC2019 will be hosted at University of Wisconsin-Madison (USA) from July 25 to August 1, 2019. Several countries have already expressed firm interest to host the ICRC 2021 and C4 has asked them to present their proposals at the C4 meetings 2017 in Busan. The strong interests to host future ICRCs can be considered a proof for the attractiveness and high scientific quality of the ICRC. To assure a transparent selection process, C4 has formulated a document that summarizes the infrastructure requirements needed

to host an ICRC and it also comes up with a catalogue of questions to be addressed in an applicant. These guidelines were provided to the potential applicants and they were received very positively. With this predefined set of rules, it is expected that the location of ICRC2021 can be selected at ICRC2017. Keeping the conference fee low, e.g. by choosing University campuses as venue, is considered of quite some importance as will allow also young scientists to participate more easily.

There were three C4 related conferences supported and endorsed by IUPAP in 2016:

- 1) 11th International Conference on the Identification of Dark Matter (IDM2016) in Sheffield, UK [18 - 22 July 2016] organized by M. Malek and N. Spooner. A report about this conference can be found in the IUPAP Newsletter of September 2016.
- 2) 19th International Symposium on Very High Cosmic Ray Interactions (ISVHECRI 2016) in Moscow, [22-27 August 2016] organized by Nikolay Kolachevsky
- 3) 25th European Cosmic Ray Symposium (ECRS-25) in Torino, IT [5-9 September 2016]. This conference was endorsed but did not receive financial support because of being a regional conference.

Two applications were received for 2017 conferences:

- 1) International Cosmic Ray Conference (ICRC 2017) in South Korea (Type A)
- 2) TAUP 2017 (XV International Conference on Topics in Astroparticle and Underground Physics) in Canada (Type B).

Support for both conferences was recommended by C4.

4. Proceedings of previous ICRCs

Thanks to the continuous efforts of current and previous C4 members, digital copies of the proceedings of most previous ICRCs are now available via ADS, see http://ads.harvard.edu/pubs/icrc_status.html

These efforts were received extremely positively by the Astroparticle community, particularly in view of the fact that – except for the most recent past – many important results in the field of cosmic ray physics were presented in ICRC proceedings only, rather than being published in standard Journals. Access to these proceedings thus was virtually impossible and worked mostly by personal connections. Some final issues with copyrights still need to be addressed for a few early ICRCs.

5. ApPIC & C4:

Communication between ApPIC, chaired by Michel Spiro (CNRS), and C4, whose chair has become an ex-officio member of ApPIC, works out very well. The C4 chair has been integrated in all communications and was invited to the ApPIC meetings. A document about Open Data Policy and data sharing in Astroparticle Physics was provided to APIF (AstroParticle International Forum with delegates from the funding agencies, chaired by Mike Turner) and a short summary of it was communicated via the IUPAP Newsletter of March 2016. However, the relation between ApPIC and APIF remains unclear: APIF at present does not feel any need for external scientific input from ApPIC and enjoys the privacy it affords for their discussions.

6. New IUPAP / C4 Webpages:

With the support of the IUPAP office, the C4 pages are continuously updated and old material is planned to be available in an archive. This work will continue to improve in particular the collection and accessibility of previous reports and resolutions.

Karl-Heinz Kampert
Chair, IUPAP C4 – Astroparticle Physics
October 9, 2016

C5 Activity Report for the IUPAP Council and Commission Chairs Meeting October 2016

Officers/Members 2014-2017

Chair	John Saunders	UK
Vice-Chair	Srinivasan Ramakrishnan	India
Secretary	William Halperin	USA
Members:	Viktoria Bekeris	Argentina
	John Beamish	Canada
	Hong Ding	China
	Pertti Hakonen	Finland
	Jean-Pascal Brison	France
	Christian Pfleiderer	Germany
	Naoto Nagaosa	Japan
	Hans Hilgenkamp	Netherlands
	Maxim Kagan	Russian Federation
	Peter Skyba	Slovakia
	Juhn-Jong Lin	Taiwan

Brief review of activity

This review covers the period October 2015-October 2016.

One sponsored conference took place:

Type B: International Symposium on Quantum Fluids and Solids 2016 (QFS2016)

Aug 10-16, 2016, Prague, Czech Republic. Chair: L Skrbek, Co-Chair: P. Skyba.

The meeting attracted 221 participants from 28 countries. 18% of the international organizing committee, which was 28 strong, were women. 20 of the participants were women, of which 1 gave an invited paper. This reflected the relatively low proportion of female researchers in this community.

The geographical spread of participants was reasonable. The countries having the most participants were Japan (45), UK (26), USA (22), Russia (18), Czech Republic (15), France (13), Finland (12), Ukraine (9), South Korea (9), Israel (7), Slovakia (7), India (6), Germany (6). 69 participants were granted partial or full support, of which 52 attended. This was administered by a small international committee.

See <http://qfs2016.org/> for details of the full programme, which featured connections with adjacent communities: nanomechanics/optomechanics; cold atoms; strongly correlated electron systems/superconductivity. Building on the practice established at QFS2015, the conference was preceded by a set of tutorial lectures targeting students and young investigators. This was attended by 80 young scientists. In addition poster prizes were awarded, with 3 European Physical Society Prizes for the best student posters. The proceedings will be published as a special issue of Journal of Low Temperature Physics, L Skrbek and P Skyba serving as guest editors. Each paper will be refereed by at least two independent reviewers. A full report received from the organisers will be uploaded onto the IUPAP C5 web pages.

This year C5 has two proposals for conference sponsorship.

Our largest international conference, for which Type A sponsorship will be requested, is the 28th International Conference on Low Temperature Physics (LT28), to be held in Gothenburg, 9-16 August 2017. This conference is held triennially. The selection was made by C5, at its meeting in August 2014, held at LT27, Buenos Aires. About 1,200 participants are anticipated at LT28. Chair: P. Delsing, Co-Chairs: M. Fogelström, J Bylander, F Lombardi. For more details see <http://www.lt28.se/>

Type B sponsorship is also being sought for a satellite meeting to LT28, ULT2017, Frontiers of Low Temperature Physics. August 17-21 2017, Heidelberg, Germany. About 220-300 participants are anticipated. This conference is intended to bring together a broad community of researchers and to forge links between different experimental communities. Chair: C. Enss. The previous two ULT meetings have attracted IUPAP Type B sponsorship.

The IUPAP Young Scientist Prize will be awarded at LT28. It is anticipated that three prizes will be awarded. A call for nominations has been issued with a deadline of January 5th, 2017. C5 will select the prizewinners via e-mail correspondence.

Commission C5 will next meet at LT28 in August 2017. Work began some time ago, through C5, to identify the organisers/site of LT29 in 2020, and a formal call for proposals will be issued with a deadline in April 2017. By geographical rotation LT29 would be in Asia. C5 is aware that a bid is being prepared by colleagues in Japan: Chairs; Naoto Nagaosa (member C5)/Yoshiteru Maeno.

Submitted by
John Saunders, September 2016

Commission C6 – Biological Physics

The C6 Report to the IUPAP Executive Council and Commission Chair Meeting

October 2016

Aihua Xie, the C6 Commission Chair

1. Membership

C6 membership (2014-2017)

Name	Country	Roles	Terms
Aihua Xie	USA	Chair	(2014) (2011)
Helmut Grubmuller	Germany	Vice Chair	(2014) (2011)(2008)
Rita Maria Cunha de Almeida	Brazil	Secretary	(2014) (2011)
Melanie Campbell	Canada	Member	(2014)
Imre Derenyi	Hungary	Member	(2014) (2011)
Ramin Golestanian	UK	Member	(2014) (2011)
Ming Li	China	Member	(2014)
Silvia Morante	Italy	Member	(2014) (2011)
Madan Rao	India	Member	(2014)
Paolo de los Rios	Switzerland	Member	(2014) (2011)
Galina Rznichenko	Russia	Member	(2014) (2011)
Masaki Sasai	Japan	Member	(2014)
Bryan Trevor Sewell	South Africa	Member	(2014)
Francoise Brochard Wyart	France	Member	(2014)
Fridtjof Nusslin	Germany	Associate Member AC4 Medical Physics	2013-2015

2. C6 Activities (Nov 2015-Oct 2016)

The main efforts were devoted to organizing the 9th IUPAP International Conference on Biological Physics (ICBP2017) which will be held in June 5-9, 2017 in Rio de Janeiro, Brazil.



Conference website: <http://www.if.ufrgs.br/icbp2017/>

The main organizer: Dr. Rita MC de Almeida, the IUPAP C6 secretary.

The co-organizer: Marcio Argollo de Menezes (IF-UFF, Niteroi, RJ) co-chair

Dr. Rita Almeida made tremendous efforts in organizing the conference programs, set up the conference website, set up the financial structure of the conference, applying financial supports from many sources, and organizing satellite conferences. The C6 chair (A. Xie) had many communications with her during the process, and helped with organizing 3 symposia on physics of proteins and one satellite conference. In addition, two other IUPAP members helped with organizing two symposium: Dr. Ming Li for Single Molecule Biophysics, and Dr. Ramin Golestanian for Cell Migration.

The four satellite conferences are:

Cell Migration, Porto Alegre. 12-14 June, 2017 (Gilberto L. Thomas. glt@if.ufrgs.br)

Systems Biology, Natal. 31 May - 2 June, 2017 (Rodrigo Dalmolin. dalmolin_r@yahoo.com.br)

Active Matter, Porto de Galinhas. 1-3 June, 2017 (Raul Montagne montagne57@gmail.com & Leonardo G. Brunnet leon@if.ufrgs.br)

Intrinsically Disordered Proteins in Health & Diseases, Rio de Janeiro. June 3-4, 2017 (Jerson Silve)

3. Future Activities

- * Continue to support the efforts of organizing the ICBP2017 conference and the four satellite conferences
- * The IUPAP C6 Young Investigator Prize (IYP) for 2015, 2016 and 2017, including announcement, review applications, select winners, arrange prize medals, and present the prizes.
- * Select the next location and the organizer of the next IUPAP International Conference on Biological Physics
- * The IUPAP C6 commission meeting at the ICBP2017 June 5, 2017 in Rio.

**IUPAP Commission on Semiconductor Physics (C8)
Report on Activities in 2016 for the October, 2016 C&CC Meeting**

C8 Membership 2015-2016

Chair	Michael Thewalt		Canada	thewalt@sfu.ca
Vice-Chair	Belita Koiller		Brazil	bkoiller@gmail.com
Secretary	Rolf Haug		Germany	haug@nano.uni-hannover.de
Member	Qi-Kun Xue		China	qkxue@mail.tsinghua.edu.cn
Member	Pascale Senellart		France	pascale.senellart@lpn.cnrs.fr
Member	Young Dong Kim		Korea	ydkim@khu.ac.kr
Member	Amalia Patanè		United Kingdom	amalia.patane@nottingham.ac.uk
Member	Yasuhiko Arakawa		Japan	arakawa@iis.u-tokyo.ac.jp
Member	Robert Suris		Russian Federation	suris@theory.ioffe.rssi.ru
Member	Per Olof Holtz		Sweden	poh@ifm.liu.se
Member	Anna Cavallini		Italy	Anna.Cavallini@bo.infn.it
Member	Jacek Kossut		Poland	kossut@ifpan.edu.pl
Member	Uli Zülicke		New Zealand	uli.zuelicke@vuw.ac.nz
Member	Alan MacDonald		United States	macd@physics.utexas.edu
Assoc. Mem.	Thaddeus Ladd	C17	United States	tldadd@hrl.com
Assoc. Mem.	Vladimir Kulakovskii	C10	Russian Federation	kulakovs@issp.ru
Assoc. Mem.	Joël Cibert	C9	France	joel.cibert@neel.cnrs.fr

Sponsored Conferences

C8 had one sponsored type-A conference in 2016, the 33rd International Conference on the Physics of Semiconductors (ICPS) in Beijing, China from July 31 to August 5. The ICPS is the main conference series of C8, and the 33rd ICPS was a great success. Over 1025 physicists attended from 35 countries, and 1217 abstracts were submitted. The program included nearly 300 oral contributions, more than 80 plenary and invited talks, and almost 800 posters. The Nobel Symposium which began the conference on Sunday was a particular success, with animated participation from the audience.

The commission was gratified that this year's ICPS organizers gave the IUPAP Young Scientist Prizes particularly high exposure, with a Plenary Awards Session on Friday immediately before the closing ceremonies. The organizers also reinstated the Student Poster Awards, 34 of which were given out during the Plenary Awards Session. These awards were adjudicated by the ICPS Program Committee, and the financial component of the awards were supported in equal part by C8 and the 33rd ICPS.

19.7 % of those attending the 33rd ICPS were female, and almost 20% of the student poster awards went to female participants. However, only 12.4% of oral presentations at the conference were given by women, so there is certainly room for improvement.

The organizers noted that the number of participants was considerably lower than the 1470 that registered, and further noted that a number of cancellations resulted from

inabilities to obtain travel documents or authorizations. This is a significant problem, but there is no clear solution other than encouraging potential attendees to begin making their travel plans as early as possible.

IUPAP C8 Young Scientist Prizes for 2016

Two prizes were awarded at the 33rd ICPS, to:

Prof. Kimberly Thelander, Lund University:

“for her work to control and understand growth of nanowires, including three-dimensional structures, superlattices, crystal phase engineering and bandgap design”

and to Dr. Sam Stranks, MIT:

“for pioneering discoveries in the field of perovskite solar cells and optoelectronics through spectroscopy”

C8 Annual General Meeting (AGM)

The C8 AGM took place on the afternoon of August 4, 2016 at the 33rd ICPS in Beijing, China. Seven members of C8 were present at the meeting, and the entire membership offered input via email on issues of significance both before and after the meeting.

ICPS chair Hongqi Xu presented a summary and statistics for 33rd ICPS, which all agreed had been a notable success.

Conference Chair Bernard Gil and Program Chair Guillaume Cassabois presented a bid for the 34rd International Conference on the Physics of Semiconductors (ICPS34), to be held in Montpellier, France from July 29 to Aug. 3, 2018. Members of the commission made several helpful suggestions, and were pleased that the planned early registration fee of 500 EUR was less than the maximum allowed by IUPAP.

C8 members unanimously approved the Montpellier bid for the 34th ICPS, and Bernard Gill invited the 33rd ICPS attendees to the 34th ICPS in Montpellier during the ICPS closing ceremonies on Friday.

Sven Rogge and Michelle Simmons, of the University of New South Wales, Australia, presented an update of their plans to bid for ICPS35 (2020) in Sydney. All preparations and plans seemed to be well in hand. A formal bid is expected at the C8 AGM during ICPS34 in 2018.

Two bids for sponsorship in 2017 were received during the year and discussed at the meeting. There was unanimous support for ranking EP2DS22/MSS18 as our highest priority type A conference in 2017, and for supporting the 18th Int. II-VI conference as our second priority for a type B conference. C8 members made several suggestions for

adding to the international advisory committees and program committees of both conferences, and these suggestions were accepted with thanks by the organizers.

There was a brief review of IUPAP rules on reappointment, term limits, and nomination to commission executive committees, with the suggestion that members plan ahead, consult the executive on their plans, and try to ensure that nominations from the National Liaison Committees were in alignment with plans formulated within the commission.

The chair reviewed the merits and process of conference endorsement, and encouraged commission members to identify conferences suitable for endorsement, whether or not they would eventually apply for sponsorship. Endorsement was requested and approved by IUPAP for the 34th ICPS in Montpellier, 2018, and the 35th ICPS, tentatively in Sydney, 2020.

The nomination and adjudication process for the C8 Young Scientist Prizes was reviewed. Advancing the submission deadline date to Dec. 31 in the latest round was successful, and by the deadline date we had a good number of very strong nominations in hand. For the first time in several cycles the nomination deadline did not have to be extended, which is highly desirable. It was agreed that we were receiving a sufficient number of very strong nominations, and that the selection procedure was working well. The high profile given to the Prizes at the 33rd ICPS was greatly appreciated.

Thanks to the efforts of member Allan MacDonald, a group of potential bidders for the 2022 ICPS was identified in the Pittsburgh area of the USA. The conference would ideally take place in the Americas that year in order to maintain a geographic rotation. The group was provided with preliminary information on the conference details and bidding process, and we expect to hear more from them at the next C8 AGM.

The next C8 AGM will take place in 2017 during the EP2DS22/MSS18 conference in the USA, at a time and place to be announced.



International Union of Pure and Applied Physics

To stimulate and facilitate international cooperation in physics and the worldwide development of science.

C9. Commission on Magnetism

Report 2016

Officers 2014-2017:

Chairman: **Xiaofeng Jin**, China

Vice Chairman: **Sharika Nandan Kaul**, India

Secretary: **Burkard Hillebrands**, Germany

Members 2014-2017:

Andrew Boothroyd (2011), UK

Giovanni Carlotti (2014), Italy

Joël Cibert (2014), France

Alberto Passos Guimar (2014), Brazil

Guang-Yu Guo (2014), Taiwan

Can-Ming Hu (2014), Canada

Jae Il Lee (2014), Korea

Kai Liu (2014), USA

YoshiChika Otani (2014), Japan

Vladimir Ustinov (2014) (2011), Russia

Luis Miguel García Vinuesa (2014), Spain

Meeting

The C9 Commission Meeting was held on July 07, 2015, Palau de Congressos de Catalunya, Barcelona, Spain.

Ad 1: The Chair of the ICM 2012, Shun-Chul Shin, presented the final report of the ICM 2012 in Busan, Korea.

Ad 2: The Chair of the ICM 2015, Amílcar Labarta presented that status of the ongoing conference and showed statistical data. He pointed out, that the number of attendees is very close to the record meeting in Rome in 2003. The C9 Chair thanked the Conference Chair and his team for all their intensive work and mentioned the excellent atmosphere the conference has created already in the first days. The commission members highly appreciated, that for the first time the Conference Chair provides the gender statistics of participants, and encouraged forthcoming chairs to continue to do the same in forthcoming ICMs. The C9 Chair also reminded the Conference Chair to try the best to hand over the same amount of left over money from ICM 2012 to the next ICM in San Francisco.

Ad 3: Mark Stiles, Liesl Folks and Ron Goldfarb presented the current status of the preparation for the next ICM 2018 in San Francisco (viewgraphs attached). Designated Conference Chair is Allen McDonald, designated Secretary General is Liesl Folks, and designated Program Chair is Mark Stiles. The members discussed how to better select all the oral presentations, including plenary, invited and oral talks, and encouraged the organizers to come up with some new ideas. The C9 Chair reminded the organizers to keep the traditional ICM social events.



Conference Management

- The sponsors are;
 - IUPAP
 - The IEEE Magnetics Society
 - Physics Conferences, Inc. (PCI), a subsidiary of The American Institute of Physics (AIP)
- All are not-for-profit organizations

- Conference insurance provided by IEEE
- Financial underwriting provided by the MMM Reserve Account

- Professional conference management firm is Simply Vintage



Ad 4: Prof. Yizheng Wu presented a bid for the ICM 2021. He proposes to organize it in Shanghai, China. Members of the bidding group are Xiaofeng Jin, Jian Shen, and Jiang Xiao (all from Fudan University). The members reminded the bidding group that the final ICM local committee should be composed not only of Shanghai scientists but it should include scientists from entire China.

Ad 5: The C9 Chair pointed out that according to the IUPAP rules the Young Scientist Prize can be awarded to up to three recipients over three years. In the past, this award was given every three years to a group of one to three awardees, which is within the IUPAP rules. After a short discussion the members agreed, that from now on the Young Scientist Prize will be awarded every year to a single young scientist. The procedures for nomination and voting will be used as before (nomination from the IUPAP-C9 commission or the community, voting by e-mail).

The call for nominations will be put onto the IUPAP-C9 webpage. Awardees will be invited to the next ICM conference. They will receive the award during an award ceremony at this conference. They are invited for an invited talk, as well as to the award dinner.

Magnetism Award

The 2015 IUPAP Magnetism Award and Néel Medal has been awarded to Prof. Chia-Ling Chien, citation: "For pioneering discoveries in magnetic materials and nanostructures". Prof. Chia-Ling Chien, presented a lecture entitled "Golden Era of Modern Magnetism".

The 2015 IUPAP Young Scientist Medals in the field of Magnetism have been awarded to (in alphabetical order): Dr. Marius V. Costache, citation: "For the development of new methods to excite and detect on-chip ferromagnetic resonance and new detection schemes for the magnon-drag effect", and Dr. Masamitsu Hayashi, citation: "For the pioneering work on domain wall dynamics in magnetic nanowires and contributions to the development of current controlled magnetism in magnetic heterostructures using spin orbit effects".

The C10 Activity Report: Structure and Dynamics of Condensed Matter for the C and CC Meeting, IUPAP, Oct., 2016

(Submitted by Raynien Kwo, Chair C10)

C10 Members for the years of 2015 -2017

Officers

1. Chair: J. Raynien Kwo (2014) (2011) (2008)

Department of Physics, National Tsing Hua University, Hsinchu, Taiwan

Vice-Chair: Laura Greene (2014) (2011)

Department of Physics, University of Illinois, Urbana-Champaign, Urbana, Illinois, USA

Secretary: Hartmut S. Leipner (2014) (2011)

Interdisziplinäres Zentrum für Material-Wissenschaften der Universität Halle-Wittenberg, Halle, Germany

Members

2. Maria Luisa Medarde Barragan (2014)

Laboratory for Developments and Methods, Paul Scherrer Institut, Switzerland

Jonas Fransson (2014) (2011)

Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden

Vladimir Kulakovskii (2014)

Solid State Physics Institute, RAS, Central'naya, Chernogolovka, Moscow Region, Russian Federation

Najeh Thabet Mliki (2014) (2011)

Department of Physics, Faculty of Science of Tunis, University of Tunis El Manar, Tunis Tunisia

Kell Mortensen (2014)

Niels Bohr Institute, University of Copenhagen, Universitetsparken, Copenhagen, Denmark

Youichi Murakami (2014)

Institute of Materials Structure Science, High Energy Accelerator Research, Tsukuba, Japan

TaeWon Noh (2014)

Center for Correlated Electron Systems, Seoul National University, Seoul Republic of Korea

Rob Robinson (2014) (2011)

Australian Nuclear Science & Technology Organisation, New South Wales, Australia

Dominik Schaniel (2014)

Laboratory for Crystallography, Magnetic Resonance, and Modelling, Vandoeuvre-I, France

Matt Tucker (2014)

ISIS facility & Diamond light source Ltd, Harwell, Oxford, UK

Mu Wang (2014) (2011)

National Lab of Solid State Microstructure, School of Physics, Nanjing University, Nanjing, China

Activity Report:

(1) Young Scientists prize 2016:

In the past year we have completed the process of the C10 YSP, 2016. The call for YSP 2016 nomination was announced publicly on 5/1/2015. The deadline was on 7/15, 2015. Overall, we have received ten new, excellent applicants from countries including Korea, China, India, US, and Europe, etc, with very high caliber. We also had three roll over candidates from last year. The YSP 2016 winner was successfully elected on 9/16.

The winner is Dr. Wenzhong Bao, Fudan University, China.

His citation reads:

Dr. Wenzhong Bao,

Professor, Department of Microelectronics, Fudan University, China.

“ For his outstanding contribution in electrical and mechanical properties of the low-dimensional quantum materials.”.

Wenzhong Bao received his B.S. degree in Nanjing University, China in 2006 and Ph.D. from Department of Physics and Astronomy at the University of California, Riverside in 2011, then worked as a postdoctoral researcher at University of Maryland, College Park. He has been at the present position since 2015.

Dr. Bao received the Prize Certificate, Medal and Monetary Prize in DMP/DCMP Reception that honors the Awardees and Fellows in the annual APS March meeting, March 15, 2016 in Baltimore, Maryland US. He also gave an invited prize talk in the same meeting in one of the invited symposium.



Photo left to right:

Sharon Glotzer (University of Michigan), Chair DCMP; Wenzhong Bao (Fudan University), YSP C10 2016 winner; Laura Greene (National MagLab and Florida State University) DMP Past Chair and IUPAP C10 Vice Chair; John Mitchell (Argonne National Laboratory) DMP Chair

(2) Young Scientists prize 2017:

The C10 2017YSP was announced to call for open nominations from 6/1 till 8/15/2016. So far we have received 8 new nominations for 2017, and 8 rolled-over candidates from 2016. The review process will be due by 9/25 to decide the finalist.

(3) Sponsored Conferences:

C10 also has sponsored another conference of “**Sixth International Conference on Nanostructures**” (ICNS6) in 2016, as organized by the Institute for Nanoscience and Nanotechnology (INST) of Sharif University of Technology, Iran. It was held in beautiful Kish Island, Iran on March 7-10, 2016. The Conference has gathered well known international scientists and researchers to exchange ideas, share new knowledge and present advances in the fields of Nanoscience and Nanostructures, as an important international and multi-disciplinary event in the field of nanotechnology.

(4) Cross-commission engagement within IUPAP:

For the new Working Group of Accelerator Science in the IUPAP, C10 has nominated Dr. Di-jing Huang, the Deputy Director of Taiwan’s National Synchrotron Radiation Research Center (NSRRC) to be the new member.

C11 Report to IUPAP Commission Chairs and Executive Committee

October 2016

Juan Fuster, Chair IUPAP-C11 Commission

C11 Officers:

Chair: Juan Fuster (2014) (2011), Spain

Vice-Chair: Heidi Schellman (2014)(2011), USA

Secretary: Soo-Bong Kim (2014)(2011), Korea

C11 Members:

Martin Schnabl (2014) Czech Republic

Zhizhong Xing (2014) China

Amol Dighe I(2014) India

Dezső Horváth (2014) Hungary

Mark Lancaster (2011) United Kingdom

Mihoko Nojiri (2014) Japan

Vladimir Kekelidze (2011) Russian Federation

Raymond Volkas (2014) Australia

Sergio Novaes (2011) Brazil

Johan Rathsman (2014) Sweden

Florenca Canelli (2014) Switzerland

C11 Associate Members:

Johannes Knapp (C4)

Eugenio Nappi (C12)

C11 Observers:

Kok Khoo Phua, Secretary General IUPAP

Activities:

Introduction:

In 2016 the C11 commission held four meetings, three of them were by video-conference and one on-site during the International Conference on High Energy Physics (ICHEP) in Chicago on the 7th of August 2016. The agenda of the meeting can be seen at: <https://indico.cern.ch/event/555712/>. Discussion material and presentations are also accessible at this location. At this meeting, the commission reviewed recently IUPAP-sponsored conferences, discussed the upcoming conferences seeking for sponsorship, reviewed the progress on upcoming conferences and selected the location of future conferences. This year the IUPAP-C11 Young Scientists Prize process took place and the prizes were awarded during the ICHEP conference in Chicago. Cooperation with the International committee for Future Accelerators (ICFA) develops well. Specific issues and concerns under discussion are the ranking of Universities and the future of the Lepton Photon conference.

Sponsored conferences in 2016 and recommendations for future conferences:

- ***The 38th International Conference on High Energy Physics (ICHEP 2016) in Chicago, August 3-9 2016*** (Chair: Young-Kee Kim, U. Chicago). Main conference in High Energy Physics. The conference was very successful in attendance, organization and quality of the talks. The number of contributions received was 1600. About 600 talks and 500 posters were presented at the conference. A rich programme of dissemination activities also took place during the conference in particular the public talk on gravitational waves by Barry Barish. Gender issues were very well balanced as 50% of conveners and 37% of the plenary speakers were women. Number of attendees was 1430 from 51 countries, being 20% students, 21% postdoc, 20% women, 52% from Americas. A total of 175 grants were given, mainly for students.
- ***XXVII International Conference on Neutrino Physics and Astrophysics, Neutrino 2016 (South Kensington, July 4-9,2016)*** (chair: Ken Long, U. Imperial College, London). Main conference on neutrino physics. Attendance was 700 people and had to be limited due to the venue size. Participation had 20% women and 30% students. Next Neutrino conference in 2018 will be held in Heidelberg on 4th-9th of June.
- ***XXIII International Baldin Seminar on High Energy Physics (Dubna, Sep. 19-24,2016)*** (chairs: V.V. Burov V.V. and A.I. Malakhov A.I., JINR, Dubna). Main topic of the conference is on strong interactions. Past conference there were about 120 reports from 250 people from 20 countries. 22% students and 20% women as well as 20% of all speakers.

The list of recommended conferences to be sponsored by IUPAP in 2017 is:

- XXVIII International Symposium on Lepton Photon Interactions at High Energies (LP) in Guangzhou (China) 7-12 August. ***Recommended as A;***
- 8th International Particle Accelerator Conference (IPAC), Copenhagen, Denmark, 14-19 May. ***Recommended as B;***
- EPS Conference on High Energy Physics in Venice, Italy 5-10 July. ***Recommended as C.***

Upcoming conferences after 2017 under C11 supervision are:

- 2018, The 38th International Conference on High Energy Physics (ICHEP 2018) in Seoul (Korea).
- 2019 XXIX International Symposium on Lepton Photon Interactions at High Energies (LP) in Toronto (Canada)
- 2020, The 39th International Conference on High Energy Physics (ICHEP 2018) in Prague (Czech Republic).

The Lepton Photon 2019 conference in Toronto and ICHEP-2020 in Prague were decided at last C11 meeting in Chicago.

A discussion on the relevance and necessity to publish the conference proceedings also took place. The C11 recommended continuing to publish proceedings at least in electronic format. Main argument in favour was to encourage participation of young researchers into conferences and help getting credits for their career path.

ICFA

ICFA and C11 cooperation performs very well. Both ICFA and C11 chairs have attended the ICFA and C11 meetings, mutually and there is a fluid communication between the two committees. ICFA has renewed its motivation to keep attached to C11 covering not only accelerators related matters but also more generally all particle physics as a whole.

On-going discussions: *University Ranking*

Various agencies that rank universities worldwide announced that they would exclude papers from large collaborations from consideration. Their definition of “large collaboration” was applying to those having more than 1000 authors. In this classification publications such as the Higgs and gravitational waves are not considered. This is regarded by C11 to be very damaging to our field and also to science in general especially for those disciplines, which need of large research infrastructures where collaborative effort is a must. Direct discussion with some of these agencies has taken place as a joint effort with other committees like EPS and ICFA. Communication with other IUPAP committees on this issue such as C4 and C12 has been established. Positive movements from agencies have been triggered though the issue is still not solved.

On-going discussions: *Lepton Photon, ranking and proceedings*

This conference (Lepton-Photon) has a very nice format of only plenary talks. This makes this conference very attractive to get an excellent view of the activity of the field as described by well recognized experts but lacks the participation of young people and suffers a difficult competition from other big conferences such as EPS which were held a few weeks before. The committee is very concerned about the situation and the future of this conference. The C11 is trying to help and cooperate with the local organizers to increase the participation. Holding mini-workshops, physics schools or poster sessions overlapping with the conference are seen as events, which could contribute to this purpose while keeping the traditional spirit of the conference.

Young Scientist Prize

This year the Young Scientist Prizes were awarded to:

- Stefan Hoeche (SLAC, USA) for developing high precision Monte Carlo simulations of events at hadronic colliders;
- Liangjian Wen (IHEP, China) for his original contributions to the physics of neutrinos, and in particular, to the discovery of the non-zero neutrino mixing angle θ_{13} .

The award-ceremony took place during the ICHEP conference in Chicago.

IUPAP Commission on Nuclear Physics C12

Report to Commission Chairs and Executive Committee

October 2015- October 2016

1. Membership

C12 officers

Chair: Alinka Lépine-Szily (2008) (2011) (2014), Brazil

Vice-chair: Weiping Liu (2008)(2011)(2014), China

Secretary: Joachim Stroth (2011)(2014), Germany

C12 members:

Ani Aprahamian (2014) USA

Mahananda Dasgupta (2014) Australia

Claes Fahlander (2011)(2014) Sweden

Dominique Guillemaud-Muller (2011)(2014) France

Reiner Krücken (2014) Canada

Eugenio Nappi (2014) Italy

Hirokazu Tamura (2014) (Japan)

Piet Van Duppen (2011)(2014) Belgium

Rauno Julin (2011)(2014) Finland

Milko Jaksic (2014) Croatia

Andrey Fomichev (2014) Russia

Associate members of C12 to other commissions:

C11-Eugenio Nappi

C13-Claes Fahlander

C19-Weiping Liu

Appic Working Group-Ani Aprahamian

2. Annual General Meeting of C12

The Annual General Meeting (AGM) of C12 was held in Australia, SA, at Adelaide Convention Centre, on 10th September 2016, before the International Nuclear Physics Conference (INPC2016), the main conference in the field. Ten commission members out of 14 were present. We also had the pleasure of the presence of Bruce McKellar, IUPAP president, at our meeting. The C12 meeting was held on the same venue and the day before the annual meeting of the IUPAP Working Group 9 on International Collaboration in Nuclear Physics and their participants were invited, as usual, to participate at the C12 meeting as observers.

The major items of the agenda were:

Selection procedure for IUPAP Young Scientist Prize

Nomination: September-November 2015, deadline 1st December 2015. 21 valid nominations received: 9 from Europe, 7 from Asia, 3 from South America, 2 from North America.

Thirteen members out of 14 of the commission C12 actively participated in the process of selecting 3 prize winners. For each nominee 3 members of C12 and an additional external

referee, specialist in the nominee's field, but without any links to the nominee, were assigned for assessment of merits.

Step 1: Rating on the criteria

- (1) Clearly identifiable individual contribution
- (2) Impact on field of nuclear physics
- (3) Publication record and quality (primary authorship, journal and normalized to the number of years since the PhD)
- (4) Record of talks and visibility of the nominee at nuclear physics conferences
- (5) Future prospects of the nominee

Step 2: Each member of C12 was asked to select their top three candidates from the short list of 12, giving 3 points to the first, 2 points to the second and 1 point to the third ranked candidate.

7 nominees selected for next step.

Step 3: It was decided by all members to reexamine all seven candidates by the same criteria.

Step 4: the 3 nominees with highest score were chosen as winners. The gender and geographical balance were respected (1 female, 1 from China, 2 from Europe) but the field was not well balanced, all three are from Nuclear Structure, 2 theory and 1 experimental.

Among 21 candidates, 15 were experimentalists and 5 theorists, 16 working in Nuclear Structure and Astrophysics, 4 in hadron physics and 1 in ultrarelativistic heavy ion collisions.

Confirmation of Super-heavy Elements discoveries and comments on the announcement and naming procedure

The IUPAP/IUPAC- Joint Working Party (JWP) was established in 2012 to consider claims for the discovery of new elements with atomic numbers 113, 115, 117 and 118. The JWP was constituted by 6 members, 3 indicated by IUPAP and 3 by IUPAC, but one member indicated by IUPAP renounced recently due to health problems. They are : Paul J. Karol (chemist, chair), Robert C. Barber (nuclear physicist), Bradley M. Sherrill (nuclear physicist), Emanuele Vardaci (nuclear physicist), Toshimitsu Yamazaki (nuclear physicist). Clearly, the JWP is mainly formed by nuclear physicists, since only they could evaluate and validate the discoveries. Brad Sherrill reported that the JWP worked well. The difficulties arise in its connection to IUPAP and IUPAC. The discoveries were made using characteristic nuclear physics methods: fusion reaction between a heavy target nucleus and a neutron rich projectile, accelerated in a heavy ion accelerator. The fusion product was identified by nuclear physics methods, detection of the alpha-decay chain, or/and identification of fission fragments e.g. The results of these experiments were published in physics journals as e.g. Physical Review Letters, Physical Review C etc. The JWP report which validated and gave priorities of the discovery of the 4 new elements was sent by the chair, only to the IUPAC direction. The JWP report now is posted on the IUPAC site as IUPAC Technical Report. IUPAC announced the 4 new elements in a hurry, on 30th December 2015, before even IUPAP had received the JWP report, counteracting previous agreements about joint announcements. The same happened for the naming: IUPAC announced it alone, without the participation of IUPAP.

All this created strong frustration in the C12 and IUPAP direction. The presidents of IUPAP and IUPAC are negotiating to change the procedure, involving the C12 and the Inorganic Chemistry committee and make the whole process more transparent and with more recognition of the Physics. C12 made recommendations regarding the new procedures.

Presentations and requests for IUPAP sponsorship of conferences

At the annual meeting of C12, the following recommendations for the IUPAP conference sponsorship were suggested after oral presentations from each organizer.

Conferences in 2017

Category A support:

The XXVIth International Conference on Ultrarelativistic Heavy-Ion Collisions (Quark Matter 2017) to be held in Chicago, USA, on February 5-11, 2017.

This is the major international conference on ultrarelativistic heavy-ion collisions and will take place February 5-11, 2017 in Chicago, USA. This conference is happening on a 1.5 year cycle and rotating amongst the continents (2014 in Darmstadt, Germany, 2015 in Kobe, Japan). This will be the 26th edition of this major conference which attracted more than 850 participants in its last two instances. The aim of this conference is to bring together theoretical and experimental physicists from around the world to discuss new developments in high energy heavy-ion physics. The focus of the discussions is on fundamental understanding of strongly interacting matter at the extreme conditions formed in ultrarelativistic heavy-ion collisions, which relates to the state of the early universe.

Venue: Hyatt Regency Chicago

The IAC has 43 members, 11 of them women. LOC has 30 members, 4 women.

A student day will be organized the day before the official opening. Free accommodations and reduced registration fee for 240 students.

The conference fee is US\$ 650,00 (which includes lunch, conference proceedings, coffee breaks),

It has received IUPAP support as category A conference in the past.

Category B Support:

The III International Conference on Advances in Radioactive Isotope Science (ARIS2017) to be held in Keystone, Colorado, U.S.A. May 28- June 2, 2017.

ARIS is the flagship conference for rare isotope science that resulted from a merger a few years ago of the 'International Conference on Exotic Nuclei and Atomic Masses (ENAM)' and the 'International Conference on Radioactive Nuclear Beams (RNB)'. Following the tradition of the ARIS meetings in 2011 (Leuven) and 2014 (Tokyo), ARIS 2017 will facilitate vibrant and extensive information exchange and collaboration among all the researchers in the field. The scientific program will highlight the most recent experimental and theoretical work in the field.

LOC: 10 members, 3 female. IAC: 35 members, 9 female. 40 invited speakers, 80 contributed speakers, 2-3 parallel sessions on 2 days among 5

Fee: US\$ 520,00 (early), US\$ 620,00 (late). Students US \$400,00. Fee includes coffee breaks, and

conference proceedings. ARIS 2011 in Leuven, Belgium (319 participants) and ARIS 2014 in Tokyo, Japan (407 participants) both had IUPAP support in category B, as well as, the previous conferences (ENAM, RNB).

XII Latin American Symposium on Nuclear Physics and Applications (LASNPA 2017) to be held in Havana, Cuba, October 23-27, 2017.

This is a regional conference that brings together a large segment of the nuclear physics community from South America and has attracted participation from North America, Europe, and Asian communities as well. The invited speakers have a broad international distribution. It moves around South America with a 2 years cycle and for the first time it will be held in Havana (Cuba) with strong local support. It attracts ~300 participants from all over South America and is seen as a key promotional event for the rapidly developing countries on the continent. The program has a strong component of applications of nuclear techniques. It was

supported as a category B topical conference in 2015. It is an important element for the growth of the nuclear physics community in South America.

LOC: 16 members, 7 female. IAC: 42 members, 7 female. Expected number of participants: 350.

Registration fee: 300,00 Euro, covers, conference proceedings, coffee breaks, welcome reception, conference concert, and the conference dinner.

The C12 commission received two bids for hosting the next International Nuclear Physics conference (INPC) in 2019

Glasgow, Scotland, United Kingdom presented by David Ireland

Whilst the conference venue is proposed to be Glasgow, the case was made on behalf of Universities in UK and Scotland. The proposed local organizing committee, consisting of 4 women and 8 men, reflected this fact as well.

Outreach program: Public Lecture by Prof. Jim Al-Khalili. Tutorials aimed at Early Career Research and Women in Physics. Careers fund to help members with caring responsibilities to attend the conference. IOP offers students and young researchers financial support up to £300.

Fee: £420 (conference proceedings, coffee breaks, social receptions), £310 for 250 students.

Funding supports: £5,000 from Glasgow City, £5,000 from Scottish Government, free welcome drinks reception (~£4,500).

Venue: Scottish Exhibition and Conference Centre in Glasgow located at walking distance to many hotels. The venue has been used to host conferences of similar size, and the parallel sessions will be located under one roof.

The whole nuclear physics community of UK manifests a great interest in hosting INPC2019, due to the visibility it can give to Nuclear Physics.

iThemba LABS, Cape Town, South Africa presented by Faïçal Azaiez, director of iThemba.

The date of conference was proposed to be either May or October 2019. The progress of inter disciplinary research in iThemba laboratory was presented and the importance of the laboratory in training in accelerator-based science, and its international links were mentioned. The conference is proposed to be co-hosted by iThemba laboratory, six universities and the Nuclear Energy Corporation of South Africa.

The iThemba laboratory will play a major role with 8 out of 15 scientists (2 women) in the local organizing committee (LOC) being from iThemba.

The conference is endorsed by South African Institute of Physics. The financial support to the conference through laboratory resources was mentioned. The organizers were also to approach other national institutions to seek financial support. Venue: Cape Town International Convention Centre. The presentation mentioned that iThemba has experienced conference management team, and that the proposed venue can accommodate all the sessions under one roof. The strong support from government to Astrophysical community was also mentioned.

The C12 commission evaluated these two bids and selected Glasgow as the host for INPC 2019 by an open voting procedure.

Following the recommendation by IUPAP president, the next chair of C12, for mandate 2018-2020, was unanimously elected to be Claes Fahlander experimentalist in the field on Nuclear Structure, from Lund University, Sweden.

Report of Commission C13 - Physics for Development Period: November 2015 - October 2016

1. Annual meeting

The C13 Commission held its annual meeting in Trieste, Italy on 27 August 2016.

2. Inaugural IUPAP C13 Medal

Following approval by the Council in 2015, the call for nominations for the first *IUPAP Medal for Outstanding Contributions to the Enhancement of Physics in Developing Countries* was issued and advertised on the IUPAP web site in March, with deadline on 31 July 2016. A subcommittee of C13 evaluated the nominations and presented them at the C13 meeting in Trieste. C13 approved the winner of the Medal and decided to announce the name of the winner right after the C&CC meeting. The Medal winner will receive the award during the convening of the 2017 IUPAP General Assembly, where the recipient will be invited to present a paper on the work upon which the Medal selection was made.

3. ICSU Grant proposal and collaboration with IUCr

C13 lead the preparation of a proposal for an ICSU grant on "*Utilisation of Light Source and Crystallographic Sciences to Facilitate the Enhancement of Knowledge and Improve the Economic and Social Conditions in Targeted Regions of the World*". The proposal was submitted by the IUPAP President to ICSU by the deadline of 1st October. The proposal is co-lead by IUPAP and IUCr and is supported by IUMRS, UNESCO, ICTP, EPS, AAPPS, and many synchrotron light sources worldwide. C13 feels that there is a high degree of overlap between physics and crystallography, between IUPAP and IUCr, and with IUCr available resources (e.g. OPENLAB), particularly in view of the dissemination initiatives that IUCr is currently undertaking in the developing world.

3. Conferences / African School Series

C13 sponsored in 2016 three conferences/schools:

- 1) *Entrepreneurship for Scientists and Engineers*, Maharaja Sayajirao University of Baroda, India, 19–21 September 2016
- 2) *4th Biennial African School of Fundamental Physics and Applications (ASFPA)*, 01 – 19 August 2016, Kigali, Rwanda.
- 3) *4th African School on Electronic Structure Methods and Applications (ASESMA)*, 12 – 25 June 2016, University of Ghana, Legon-Accra.

4. Contacts with other commissions / institutions

AC4 (Medical Physics) – Sandro Scandolo (C13) as associate member of AC4
WG5 (Women in Physics) – Lilia Mesa-Montes (WG5) as C13 associate member
C14 (Physics Education) – Gorazd Planinšič (C14) as C13 associate member
C12 (Nuclear Physics) -- Claes Fahlander (C12) as C13 associate member
EPS – C. Iorio (EPS for Development) is also a C13 member
IUCr co-leads and IUMRS, UNESCO, AAPPS support ICSU proposal

Sandro Scandolo, C13 Chair
12 October 2016

IOP for Africa proposal to IUPAP commission chairs

22nd-23rd October 2016

The Institute of Physics is a leading scientific society with a worldwide membership of over 50,000, working together to advance physics, education, research and application. Within that sits the IOP for Africa programme which provides practical physics teacher training in Ghana, South Africa, Ethiopia and Tanzania.

IOP for Africa began in 2005 with a donation of equipment to a school in Rwanda and over the last decade has evolved into a programme that is well established in several countries. The intention behind the programme is to address a common issue: that the teaching of physics is only theoretical. This can be successful when focusing on passing examinations but does little for ingraining a true understanding of physics.

The IOP volunteers have done a great deal to help address that issue. They have trained teachers in how to give more effective lessons in experimental physics with limited equipment, provided experimental and IT equipment to schools and set up resource centers. In some cases volunteers have trained local contacts in how to build practical physics kit and how to manage the resource centers. The programme has attracted support from national government departments and exam results have improved.

With that in mind the IOP has a vision to take the programme further and build a physics consortium to deliver it and this would incorporate major physics and science based bodies. The vision also includes re-branding the IOP for Africa programme into one led by IUPAP as the umbrella organisation.

The IOP proposes that the commission chairs provide comments on the concept and make suggestions/ pose questions where necessary. The proposal will then be taken to a wider group of prospective partners in 2017 and having a separate roundtable at the IUPAP General Assembly in 2017 is a possible opportunity to do this.

More background information on the IOP for Africa programme can be found on the IOP website; [Ghana](#), [South Africa](#), [Ethiopia](#) and [Tanzania](#).

International office, the Institute of Physics

International Commission on Physics Education (C14) Activity Report (Nov.-Oct. 2016)

Officers/Members (2014-2017)

Chair: Hideo Nitta (Japan)
Vice-Chair: Leoš Dvorač (Czech Republic)
Secretary: Zulma Gangoso (Argentina)
Members: Qiang Chen (China)
Jayashree Ramadas (India)
David Sands (United Kingdom)
Eilish McLoughlin (Ireland)
Dmitry Khokhlov (Russian Federation)
Deena Naidoo (South Africa)
Roberto Nardi (Brazil)
Lotten Glans (Sweden)
Priscilla Laws (United States)
Ian Bearden (Denmark)
Gorazd Planinsic (Slovenia)

Conference

The Second World Conference on Physics Education (2nd WCPE 2016) was held on July 10-15 at the University of São Paulo, Brazil (<http://wcpe2016.org/en/>). The conference theme was “Contemporary Science Education and Challenges in the Present Society: perspectives in Physics Teaching and Learning”. The conference was jointly organized and supported by IUPAP through C14, GIREP (Groupe International de Recherche sur l'Enseignement de la Physique) and MPTL (the Multimedia in Physics Teaching and Learning group) and endorsed by AAPT (American Association of Physics Teachers), LAPEN (Latin American Physics Education Network) and ASPEN (the Asian Physics Education Network). The 3rd WCPE had 382 participants, 117 oral presentations, 131 poster presentations, and 6 workshops. 135 participants came from outside Brazil.

ICPE Medal

We finally resolved “the ICPE Medal using-up” problem we had faced in these years. Roberto Nardi is thanked for his efforts to find a very good medal factory for reproduction within the reasonable price that we can afford. We reproduce 20 medals. At WCPE in São Paulo Professor Kaihua Zhao (China) was awarded the first reproduced ICPE Medal in recognition of his sustained efforts in physics education over more than a half century, both domestically and internationally.

Annual ICPE face-to-face meeting

The annual ICPE commission meeting was held on July 15, 2016, immediately after the closing of the WCPE 2016 conference in São Paulo. Unfortunately, only a few members could attend the meeting. Some important agenda discussed were:

1) Future conferences

GIREP-ICPE-EPEC 2017:

The planned 2017 conference supported by IUPAP and C14 is "GIREP-ICPE-EPEC 2017: Sharing research and practice in Physics Teaching and Learning" on 3 (Mon.)-7 (Fri.), July 2017 in Dublin, Ireland. Conference website is: <http://www.girep2017.org>

IUPAP sponsorship has been requested.

ICPE 2018:

C14 approved unanimously to the proposal from Deena Naidoo to organize 2018 International Conference on Physics Education in Johannesburg, South Africa. The date has not been fixed yet. IUPAP sponsorship for the conference will be submitted.

2) ICPE Newsletter

C14 will publish ICPE Newsletter soon which will be edited by the new editor, Manjula Sharma (Associate Member of C14). The style of the ICPE Newsletter will become simpler but more dynamic.

3) Cooperation of ICPE with other bodies/organizations

Cooperation with the Women in Physics:

Though this subject will be discussed more intensively in the future meeting, C14 has asked the local organizing committee of the 2017 conference on physics education (Dublin) to consider organizing a workshop in cooperation with the Commission of Women in Physics.

Cooperation with GIREP:

It was confirmed that the cooperation with GIREP must be enhanced, such as co-organizing international conferences.

4) Next ICPE commission meeting

Afternoon of 7th July, 2017 in Dublin (to be confirmed).

Submitted by Hideo Nitta (C14 Chair)

October 3, 2016

Commission C15: Atomic, Molecular and Optical Physics

Report (October 2015 – October 2016) to the IUPAP Council & Commission Chairs meeting

Submitted by Toshiyuki Azuma (Chair)

C15 officer:

Chair:

Toshiyuki Azuma
Atomic, Molecular & Optical Physics Laboratory, RIKEN, Hirosawa 2-1, Wako,
Saitama 351-0198, Japan
Email: toshi-yuki-azuma@riken.jp

Vice Chair:

Roberto Rivarola
Instituto de Física Rosario (IFIR), Oficina 205,
BV. 27 de Febrero 210 Bis Rosario Santa Fe 2000, Argentina
Email: rivarola@ifir-conicet.gov.ar

Secretary:

Dominique Vernhet,
Institut des NanoSciences de Paris, Université Pierre et Marie Curie – Paris 6
B84, 4 place Jussieu, 75252 Paris cedex 05, France
Email: dominique.vernhet@insp.jussieu.fr

C15 Activity:

The major activities from October 2015 to October 2016 are categorized into the following three items.

1. IUPAP C15 Young Scientist Prize

The commission C15 runs the IUPAP Young Scientist Prize in Atomic, Molecular, and Optical (AMO) Physics.

Dr. Yu-Ao Chen (University of Science and Technology of China, China) was selected as a 2016 C15 YSP winner after competitive ranking from 16 nominations.

The prize has been awarded annually alternating between the two major “flagship” conferences of the AMO Physics field regularly supported by IUPAP, ICPEAC (the International Conference on Photonic, Electronic, and Atomic Collisions) or ICAP (the International Conference on Atomic Physics). This year, the winner was invited to talk on 27 July 2016 at ICAP in Seoul, Korea, and received the medal and certificate at the banquet on 28 July 2016.

2. Conference Support

The following two conferences were supported by IUPAP in 2016.

The 25th International Conference on Atomic Physics (ICAP 2016)

Location: Seoul, Korea
Date: 24 - 29 July 2016
Conference Type: A

The 18th International Conference on Physics of Highly Charged Ions (HCI 2016)

Location: Kielce, Poland

Date: 11 - 16 September 2016

Conference Type: B

3. C15 Commission Meeting

The commission meeting was held on 28 July 2016 during ICAP 2016. The chair T. Azuma explained the present activities including the funding situation of IUPAP, and the member W. Jhe (co-chair of ICAP) explained the how the IUPAP support was used for ICAP2016. The committee exchanged opinions to encourage and stimulate future C15 activities.

Future schedule:

The C15 commission meeting and the winner's talk of 2017 YSP are scheduled during the coming ICPEAC 2017 at Cairns, Australia.

The 30th International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC 2017)

<http://www.icpeac30.edu.au>

Location: Cairns, Australia

Date: 26 - 1 August 2016

Chair: Hossein Sadeghpour (Harvard Univ., US)

Local Chair: Anatoli Kheifets (Australian National Univ., Australia)

Conference Type: A (expected)

IUPAP C16 Report 2016

Commission Meeting 2016

A C16 Commission meeting was held during the ICPP (International Congress on Plasma Physics) meeting in Taiwan on June 27, 2016. Four committee members including the chair, vice chair and secretary etc. and one associate member (the organizer of ICPP 2016) were present and discussed the conference application cases to be sponsored by the IUPAP in 2017 along with other issues.

IUPAP Young Scientist Prize in Plasma Physics

The C16 awarded the 2016 Young Scientist Prize in plasma physics to Dr. Sam Vinko (University of Oxford, United Kingdom). The citation reads "In recognition of his seminal contributions in using the world's first hard X-ray free electron laser to create and diagnose solid density plasmas, and for new insights into the electronic structure and collisional dynamics of such systems". The award was given by the Chair of the C16 Commission at the 2016 ICPP meeting. The laureate also gave an invited talk at the meeting.

This year the selection rules were modified in more strict manner with all applications required to include a CV with a complete list of publications marked with citation number, three to five reference letters, three representative papers and the reason for nomination etc. The C16 was very pleased to receive ten very competitive applications with outstanding academic achievements and the winner was selected by the C16 members under the chairmanship of L. N. Hau.

According to the IUPAP only three winners shall be awarded for the Young Scientist Prize by each commission in its three years term. The C16 has awarded two winners in 2015 and one winner in 2016. As a result, it is concluded at the 2016 commission meeting that no selection on the YSP in plasma physics will be held in 2017. It is also concluded that the future selection rules for the YSP in plasma physics shall be decided by the new commission.

EPS/IUPAP 2016 Student Poster Prize

The C16 continues to co-sponsor the EPS-Division of Plasma Physics Student Poster Prize. The 43th EPS-DPP conference on plasma physics was held at Leuven, Belgium during July 4-8, 2016. The student poster prizes (PPCF/EPS/IUPAP prize) are jointly sponsored by the EPS, IUPAP and PPCF

(the international journal of plasma physics and controlled fusion) awarded to Arkaprava Bokshi (York University) for “The self-consistent response of linear micro-instabilities to profile evolution”, Mark Coughlan (QUB) for “Ultra-fast dynamics of crystals irradiated by few-ps proton pulses”, Cristian Sommariva (CEA/IRFM) for “Modeling runaway electron dynamics in realistic fields from 3D nonlinear MHD disruption simulations” and Hannah Willett (York University) for “The role of plasma instabilities in the onset of detachment in the York Linear Plasma Device”. The competition is only open to PhD students and the selection is judged by members of the conference program committee.

IUPAP Sponsored Conference - ICPP 2016

The 18th International Congress on Plasma Physics (ICPP) was held at Kaohsiung City, Taiwan during June 27 - July 1, 2016. The chair of the meeting is Professor Frank Cheng of the National Cheng Kung University. The ICPP is the largest international conference on plasma physics and has traditionally been sponsored by the IUPAP since its first meeting held in Nagoya in 1980. There are 350 participants from 27 countries in the 2016 ICPP meeting with 81 students and 47 female participants. Two special issues have been under planned for publication in the Nuclear Fusion and Plasma Physics and Controlled Fusion journals. It was also decided at the meeting that the 2018 ICPP meeting will be held in Canada.

The ICPP committee and C16 have worked together to arrange an award ceremony for the YSP at the conference dinner event. The organizer acknowledged the sponsorship of IUPAP openly and the C16 chair also gave a brief speech stressing the support of IUPAP to the plasma community.

On the last day of the meeting the chair also organized a lunch event for the YSP winners of 2015 and 2016 by inviting the commission members (chair, vice chair, secretary and the representative member from Canada) and the former C16 chair to the meeting. Such an event has promoted the interaction between young and senior plasma scientists as well as the recognition of the importance of YSP to the outstanding young plasma physicists in terms of academic achievement and professional career.

2017 Conference Application

This year there are four plasma conference applications submitted to the IUPAP as compared to the two applications of 2015. At the 2016 commission meeting the applications were reviewed and discussed by the commission members and the final decision on the sponsorship will be approved at the UPAP commission chair meeting to be held in Taipei in Oct of 2016.

1. The 8th International Conference on the Physics of Dusty Plasmas (5/21-5/26, 2017, Prague, Czech Republic).
2. The 8th International Conference on the Frontiers of Plasma Physics and Technology (4/3-4/7, 2017, Vina Del Mar, Chile).
3. International Conference on Inertial Fusion and Science Application (IFSA) (9/11-9/15, 2017, Saint Malo, France).
4. International Conference on Phenomena in Ionized Gases (7/9-7/14, 2017, Lisbon, Portugal).

The IUPAP Newsletter

The C16 has been enthusiastic in contributing to the 2016 IUPAP newsletter by the following articles and reports.

March issue:

Start of Operations for the Stellarator Wendelstein 7-X Fusion Device
France at the Forefront of Promoting Ultra-High Power Laser-Based Sciences

June Issue:

Monaco ITER International Fusion Energy Days MIIFED (8-11 February 2016)
2016 C16 Young Scientist Award - Sam M. Vinko

September issue:

Conference Report on the 2016 ICPP

**IUPAP C17: Commission on Laser Physics and Photonics
Report to IUPAP Council and Commission Chairs Meeting, Taipei, Taiwan, 22-23 October 2016**

1. IUPAP C17 2017 Young Scientist Prize

The call for nominations for the 2017 IUPAP C17: Laser Physics and Photonics Young Scientist Prizes is being launched with a deadline for nominations of 20 December 2016 (see Appendix A). Agreement has been negotiated for the awards ceremony to be held at CLEO-PR 2017 (within Photonics@SG) 31 July to 4 August 2017 in Singapore.

2. International Year of Light (and Light Based Technologies) 2015

The final report for the International Year is available on the website <http://www.light2015.org/Home/About/IYL-Final-Report.html> . Overall the year has been judged to have been a resounding success with future benefits to continue to be derived.

An excerpt from the website description of the 272 page report:

“This report aims to give a synthetic account of IYL 2015, first describing its origins and goals, and then providing a summary of the many events and activities that took place worldwide. The report also contains information on organisation and communications, and it is hoped that these details may provide guidance for others who may wish to organize a similar global outreach initiative in the future.

I believe that everyone involved in IYL 2015 can feel immensely proud of what has been achieved. We can also feel confident that many of the partnerships established during IYL 2015 will continue. It is sometimes difficult to see how we as individuals can contribute to solving issues of global importance, but I believe that the International Year of Light has provided a timely reminder that through our commitment to education and outreach, we can really make a difference.

It is now up to us to build on what we have learned and what we have accomplished during 2015 to continue to work together for the betterment of all.

John Dudley, Chair of the IYL 2015 Steering Committee”

3. IUPAP C17 Sponsored conference

International Laser Physics Workshop 2016 (LPHYS'16), held in Yerevan Armenia, 11-15 July 2016. <http://www.lasphys.com/workshops/lasphys16/>

Report of Professor Koryun Oganesan, Chair of Local Organising Committee, edited by Deb Kane

The LPHYS'16 paid tribute to the three major anniversaries:

**100th Anniversary of Alexander M Prokhorov's Birth,
100th anniversary of the Optical Society (OSA)
25th anniversary of the Laser Physics Workshop**

Alexander M Prokhorov, was one of scientists honoured for the invention of lasers as a Nobel Prize winner in physics of 1964 . He also initiated the first International Laser Physics Workshop held in 1990. Over the following 10 years he was the esteemed leader and chairman of the conference. After his death in 2002, his disciples committed themselves to the ongoing organization of the conference. The conference is held annually, and almost every time in different countries of Europe, America and Asia. The conference website has a map on which you can trace the geography of its routes. This is Russia, Italy, Spain, France, Brazil, USA, Canada, Norway, Germany ... <http://www.lasphys.com/workshops/history>



The conference was held for the first time in Yerevan, Armenia, in 2016 (11-15 July) <http://www.lasphys.com/workshops/lasphys16>. It opened on the very day of the 100th anniversary of AM Prokhorov's birth. 2016 was also the first year LPHYS has been held in a Commonwealth of Independent States country. The choice of Armenia for 2016 was underpinned by several factors. The main one was that laser physics school in Armenia is still at operating at a high level, despite challenges. Secondly, the President of National Academy of Science of Armenia, Professor Radik Martirosyan, was a graduate student of AM Prokhorov. Living Prokhorov students can be counted on the fingers, so that it Radik Martirosyan was instructed to make a presentation about the famous scientist.

The conference was marked by yet another anniversary - the 100th anniversary of the Optical Society (OSA). Past president of the society - the famous American scientist Professor Joseph Eberle, also called for the conference to be held in Yerevan. For many years cooperation between the Yerevan Physics Institute (now the Alikhanyan National Science Laboratory) and the Moscow Prokhorov Institute of General Physics, Russian Academy of Sciences has continued. This close scientific relationship, and its international recognition, also supported the decision to hold a jubilee conference in Yerevan. Chairman of the local organizing committee of the conference, Prof. Koryun Oganessian, a senior fellow at the Theoretical Department of the Alikhanyan National Science Laboratory (Yerevan Physics Institute) also has many articles co-authored with Prokhorov. The 2016 the conference included 8 parallel Seminars covering topics from "Modern Trends in Laser Physics" to "Quantum Information Science", and one Symposium on "Extreme Light Technologies, Science and Applications". There were 361 participants from 35 countries. 17% of the participants were female. The conference, as noted by the participants, was successful. All aspects of laser physics were lit, new and interesting trends and results in the areas of laser physics, as coherent light sources, nonlinear and quantum optics, laser spectroscopy of atoms, modern trends in laser physics, the study of the optical properties of nanostructures and luminescent substances etc., in the program forum reflected several scientific discoveries of 2015-16 and, of course, the most spectacular of them - heralding a new era in the history of science - the detection of gravity waves by LIGO. Gravitational waves are not relevant to laser physics, but they were able to be registered through the application of the highest achievements of the laser physics, laser engineering and technology.

The core contingent of participants are professors. These prominent scientists bring to the conference their graduate students early career researchers. Many of those who have participated in LPHYS as graduate students, have become renowned scientists in their own right. There is a backbone of some 60 people who have not missed a single conference in the series.

In addition to the high quality scientific program, Armenia, with its ancient architectural monuments and magnificent natural heritage left an indelible impression on all participants.

The sponsorship from the International Union of Pure and Applied Physics supported participants from Ukraine, Kazakhstan, Bosnia & Herzegovina, and Russia (two female).



Professor Koryun Oganessian acknowledging sponsors during the opening ceremony of the conference.

4. The 100th Anniversary of the birth of Prof AM Prokhorov

This anniversary has been celebrated around the world, including in Australia, Prokhorov's birthplace. Russia issued a commemorative stamp.

<http://1015fm.com.au/2016/08/queenslander-alexander-prokhorov-meet-australias-forgotten-nobel-prize-winner/>

<http://www.abc.net.au/radionational/programs/breakfast/scientists-celebrate-the-laser/7585798>

<http://lpl.creol.ucf.edu/News.aspx?NewsID=659>

<http://www.diomedia.com/100-years-since-the-birth-of-alexander-prokhorov-russian-physicist-nobel-prize-laureate-d-2002-birth-anniversary-stock-images-62044-11072016.html>

<http://www.photonics-expo.ru/en/news/index.php?id4=7974>

<http://iopscience.iop.org/journal/1555-6611/page/Special-issue-dedicated-to-Alexander-M-Prokhorov>

<http://iopscience.iop.org/article/10.1070/QEL16172/meta>

<http://lpl.creol.ucf.edu/News.aspx?NewsID=659>

https://www.researchgate.net/publication/307558508_Prokhorovman_and_laser_on_the_100_th_anniversary_of_his_birth

https://www.facebook.com/TheTablelander/photos/?tab=album&album_id=1114400621955275

<http://postcardpress.ru/en/stamps/2109-100-years-since-the-birth-am-prokhorov-1916-2002-physicist-nobel-prize-laureate.html>

4. Ongoing Work of the Commission

A member to take over as Chair in 2018, with the support of the current membership, has been identified. Discussions have been initiated on a number of issues relevant to the Commission.

Appendix A. Call for Nominations IUPAP C17 YSP 2017



International Union of Pure and Applied Physics (IUPAP) Commission 17: Laser Physics and Photonics Young Scientist Prizes

The IUPAP Commission 17 - Laser Physics and Photonics - is seeking nominations for its biennial Young Scientist Prizes. Two prizes are available for award. One prize is for outstanding contributions of a fundamental nature. The other is for outstanding contributions of an applied nature. Both prize winners will have demonstrated significant achievement, and exceptional promise for future achievement in the areas of laser physics and/or photonics. The recipients must be no more than eight years post PhD (excluding career interruptions) by the deadline for nominations.

Nomination Requirements and Deadline for Submission:

Nomination for the Prize must be by a senior member of the research community, with one or two additional letters of endorsement by supporters. The deadline for submissions of nominations is 20 December 2016. A complete nomination packet submitted by a senior nominator will consist of:

- A cover letter by the nominator (please indicate clearly whether the nomination is for the prize for fundamental or applied aspects);
- A citation for the Prize (30 words or less referring to the nominee by gender);
- One or two additional letters of endorsement for the nomination, one of which must be from a senior scientist who was not a former supervisor of the nominee at either the graduate or postdoctoral level and who is not a close collaborator of the nominator;
- a one-page statement by the nominee explaining the achievements and the overall significance of the work;
- Up to three salient publications co-authored by the nominee;
- An up-to-date, one page CV of the nominee;
- A list of key publications, including citation statistics; patents, etc.

Nomination packages must be in the form of a single consolidated PDF file or a ZIP archive.

Please send all material via email to the IUPAP-C17-YS Prize Committee Chair, Professor Deb Kane, deb.kane@mq.edu.au, by the deadline of 20 December 2016.

The Prize: Each Prize will consist of 1,000 Euro, a Medal, and a Certificate.

Prize Selection: The prize selection committee will consist of C17 commission members. The Prize winners will be announced on the IUPAP website.

Prize Presentation: The IUPAP C17 Young Scientist Prizes will be awarded at the 12th Conf. on Lasers and Electro-Optics Pacific Rim (CLEO-PR 2017), to be held in Singapore, 31 July-4 August 2017, within Photonics@SG (<http://photonics2017.org/index.php>).

For information: the deadline for submission of abstracts to CLEO Pacific Rim (and OECC and PCG) is December 31, 2016. <http://photonics2017.org/orgcleo.php>

IUPAP welcomes applications from outstanding women and other underrepresented groups.

Appendix B. Commission Membership 2014-2017

Officers:

Chair, Prof. Deborah Kane (2011) (2014)
Department of Physics and Astronomy
Faculty of Science
Macquarie University NSW 2109
AUSTRALIA
Phone: +61-20-9850-8907; Fax: +61-2-9850-8115
E-mail: debkane@physics.mq.edu.au; deb.kane@mq.edu.au

Vice Chair, Prof. Cristina Masoller (2011) (2014)
Departament de Física i Enginyeria Nuclear
Universitat Politècnica de Catalunya
Colom 11
Terrassa 08222, Barcelona
SPAIN
Tel: +34 937398507; Fax: +34 937398500
Email: cristina.masoller@upc.edu

Secretary, Prof. Gong Qihuang (2011) (2014)
Department of Physics
Peking University
Beijing 100871
CHINA
Tel: +86 10 6276 5884
Fax: +86 10 6275 2540
Email: qhong@pku.edu.cn

Past Chair, Prof. Victor Zadkov (2011)(2008)
Vice-Dean, Faculty of Physics
Vice-Director, International Laser Center
M.V.Lomonosov Moscow State University
Moscow 119992, RUSSIA
Phone: +7(495)939-23-71; Fax: +7(495)932-98-02
E-mail: zadkov@phys.msu.ru; zadkov@gmail.com

Members:

Prof. D Narayana Rao (2011) (2014)
School of Physics
University of Hyderabad
Prof. C.R.Rao Road
Gachibowli Hyderabad 500 046
India
Tel: +91 40 23134335
Email: dnrsp@uohyd.ernet.in

Prof. Tamás Kiss (2011) (2014)
Wigner Research Centre for Physics

Department for Quantum Optics and Quantum Information
Konkoly-Thege Miklós út 29-33
H-1121 Budapest
Hungary
Tel: +36 1 3922222
Email: kiss.tamas@wigner.mta.hu

Prof. Klaus Richter (2014)
University of Regensburg
Theoretical Physics
93040 Regensburg
Germany
Tel: +49 941 9432029
Email: klaus.richter@physik.uni-regensburg.de

Prof. Hidetoshi Katori (2014)
University of Tokyo
7-3-1 Hongo
Bunkyo-ku
Tokyo
113-0033
Japan
Tel: +81 90 12592703
Email: katori@amo.t.u-tokyo.ac.jp

Prof. Ortwin Hess (2014)
The Blackett Laboratory
Imperial College London
Department of Physics
London SW7 2AZ
United Kingdom
Tel: +44 20 75942077
Email: o.hess@imperial.ac.uk

Prof. Carlo Sirtori (2014)
Université Paris-Diderot
Laboratoire MPQ
Batiment Condorcet, Case courrier 7021
75205 Paris
France
Tel: +33 6 84865854
Email: carlo.sirtori@univ-paris-diderot.fr

Dr Thaddeus Ladd (2014)
HRL Laboratories
3011 Malibu Canyon Rd
Malibu, California 90265
United States
Tel: +1 310 3175000
Email: tdladd@hrl.com

Prof. Roberto Pini (2014)
IFAC – CNR
Via Madonna del Piano 10
50019 Sesto Fiorentino (FI)
Italy
Tel: +39 3204316616
Email: r.pini@ifac.cnr.it

Prof. Arkadiusz (Arek) Wojs (2014)
Institute of Physics
Faculty for Fundamental Problems in Technology
Wroclaw University of Technology
50-370 Wroclaw, ul. Wybrzeze Wyspianskiego 27
Poland
Tel: +48 71 3202394
Email: arkadiusz.wojs@pwr.edu.pl

Prof. Tsuneyuki Ozaki (2014)
INRS-EMT, 1650, boul. Lionel-Boulet
Varenes, Quebec J3X 1S2
Canada
Tel: +1 514 2286858
Email: ozaki@emt.inrs.ca

Prof. Mikhail Fedorov (2014)
Prokhorov General Physics Institute
38 Vavilova st.
119991, Moscow
Russian Federation
Tel: +7 915 3769335
Email: fedorovmv@gmail.com

Report of the IUPAP Commission C18: Mathematical Physics

Since the previous C18 report in October 2015, two conferences within the scope of C18 have received IUPAP support, viz. *IMSE 2016: The 14th International Conference on Integral Methods in Science and Engineering* in Padova, Italy, July 25-29, 2016, and *QMATH 2016: The 13th International Conference on Mathematical Results in Quantum Physics*, at the Georgia Institute of Technology in Atlanta, USA, October 8-11, 2016.

We have already received the report from IMSE 2016, which had 128 attendees from 24 countries, including 104 attendees from outside Italy. Unfortunately, 11 participants from Turkey could not attend the conference due to political turmoil at the time. 26% of the participants and 33% of the invited speakers were female. Regretfully, many invitations to female speakers were rejected due to double bookings, while all invited male speakers attended. 27 scientists from developing countries and countries with a lack of national funding received travel support.

The organizers provided an impressive list of important new work presented at the conference. Highlights of particular interest to the physics community include theoretical studies of resonances of plasmonic nanoparticles, singular perturbation problems, new developments in the solution of boundary value problems through integral equations with applications to the heat equation, and applications of operator theory in magneto-hydrodynamics and in photonic crystals. The organizers provided a considerably longer list which also includes advancements in applied mathematics and in the mathematical analysis of engineering problems.

We have not yet received the report from QMATH 2016, which has just concluded. However, C18 secretary Rainer Dick from the University of Saskatchewan attended QMATH 2016 as a regular participant (fully funded from his own research funds) and gave a talk in the session on New Topics in Mathematical Physics. The secretary's impression of that meeting was very positive. Both plenary and parallel sessions at the conference were very well attended, with certainly more than 200 participants attending the plenary sessions, and each of the parallel session talks attended by about 25-50 participants. While most presenters were mathematical physicists, there were also well-received presentations from experts in quantum information, quantum control, and condensed matter physics.

We do not yet have statistical data on female speakers or international participation at QMATH 2016. However, we would like to mention that Yoshiko Ogata from the University of Tokyo gave a very interesting and well-received plenary talk on the class of asymmetrically gapped Hamiltonians. This is a class of Hamiltonians which Dr. Ogata introduced to advance our understanding of equivalence classes of gapped Hamiltonians. Her work combines the physical motivation to understand gapped Hamiltonians in condensed matter physics with mathematical advancements in the understanding of quantum spin chains, and may in return lead to an improved understanding of emergence and classification of energy gaps in band structures of materials. It is also noteworthy that many of the other presentations at the conference were also motivated by advancements in condensed matter physics or quantum information. Several talks at QMATH 2016 addressed topological phase transitions or the classifications of topological materials. This is apparently very timely and remarkable, given that the participants submitted their abstracts before the announcements of this year's Nobel Prize to Haldane, Kosterlitz and Thouless.

The support by IUPAP has been greatly acknowledged. Mathematical physics represents a relatively small subgroup of the international physics community, but it certainly does not live, nor could it thrive, in isolation. Mathematical physics has always had mutually beneficial, and often seminal, exchange with other areas of physics, including statistical physics, parti-

cle physics, gravitational theory, and string theory. In recent years, this exchange has been particularly strong in the areas of condensed matter physics and quantum information science.

In the year since the last report of C18, the main activity of the C18 commission has been the monitoring of events in mathematical physics that could potentially be eligible for support by IUPAP, in particular in developing countries. We have been in contact with a number of people organizing such events. However, there will be no meetings in 2017 that satisfy the IUPAP conditions for funding under Category B, because the number of participants in topical mathematical physics meetings rarely reaches 100, hence is below the current IUPAP threshold.

The next major conference in mathematical physics will be the 19th International Congress on Mathematical Physics (ICMP 2018), which takes place at Montreal, Canada, from July 23 to 28, 2018.

The exchange within the C18 commission is being done mainly by e-mail. Individual commission members meet in person at conferences, but there has not been a meeting of the commission as a whole this year.

Manfred Salmhofer, C18 commission chair, October 20, 2016

IUPAP Commission 19 (Astrophysics) - Activity report 2015.10 – 2016.10

1. Commission membership 2014-2017

Chair: Grazina Tautvaisiene [*Lithuania*]
Vice-chair: Gerry Gilmore [*United Kingdom*]
Secretary: Patrick Woudt [*South Africa*]

Members: Petr Hadrava [*Czech Republic*]
Shuang-Nan Zhang [*China*]
Chanda Jog [*India*]
Michel Rieutord [*France*]
Rafael Rebolo [*Spain*]
Marat Mingaliev [*Russian Federation*]
Andreas Burkert [*Germany*]
Sabine Schindler [*Austria*]
Sung Won Kim [*Korea*]
Chryssa Kouveliotou [*United States*]
Pietro Ubertini [*Italy*]

Associate members (2015-2018):
Hans Kjeldsen [*Denmark*]
Wieping Liu [*China*]
Keiichi Maed [*Japan*]
Virginia Trimble [*United States*]

2. IUPAP support of international conferences

The IUPAP supported 28th Texas Symposium on Relativistic Astrophysics was held in Geneva on 13–18 December, 2015: <https://indico.cern.ch/event/336103/>
Three members of C19 worked at the Scientific Organising Committee (Grazina Tautvaisiene, Shuang-Nan Zhang, and assoc. member Virginia Trimble).
During the special session of the symposium, the IUPAP Young Scientist Medals of 2014 and 2015 in the field of Astrophysics were awarded to dr. Nanda Rea and dr. Sylvain Guiriec. The winners presented talks on their scientific research, C19 members prof. Pietro Ubertini and prof. Virginia Trimble gave presentations about the IUPAP and C19 activities.



The 29th Texas Symposium on Relativistic Astrophysics will be held in Cape Town on 3–8 December 2017 (www.texas2017.org). The 29th Symposium will be the first ever to be held on the African continent, emphasizing Southern Africa's role as the host of world-leading astrophysical facilities, such as the Southern African Large Telescope, the High Energy Stereoscopic System (HESS), and the future Square Kilometre Array. It is organized by North-West University, Potchefstroom, in cooperation with the University of Cape Town and several other South African institutions. Four members of C19 are working at the Scientific Organising Committee (Grazina Tautvaisiene, Patric Woudt, Shuang-Nan Zhang, and assoc. member Virginia Trimble).

In 2016, Commission 19 was intensively working in organising of the 3rd PANDA Symposium on Multi-wavelength Time Domain Astronomy, which had to be held from 30 May to 3 June 2016 in Nanjing, China, but was postponed to 12–16 June 2017.

Commission 19 members Chryssa Kouveliotou, Weiping Liu, Michel Rieutord, Grazina Tautvaisiene, Virginia Trimble, Pietro Ubertini, Patrick Woudt and Shuang-Nan Zhang are part of the SOC of the 3rd PANDA Symposium.

This symposium was selected for the IUPAP endorsement. The 3rd PANDA Symposium will focus on Time-Domain Astronomy: High Energy Transients and Explosions in the Universe. Multi-wavelength Time Domain Astronomy (TDA), in particular, is the future of high-energy astrophysics, as it provides a rich variety of means to study the extreme astrophysical environments and the physical processes in the transient Universe, encompassing a large variety of objects, such as Active Galactic Nuclei, X-ray binaries, Gamma-Ray Bursts, Magnetars, and even Gravitational Waves. TDA has been mostly flourished in the last decade thanks to the development of several X- and gamma-ray satellites, and the support of multiple ground-based observatories (<http://indico.ihep.ac.cn/event/5320/overview>). Internationally, several conferences and workshops have been organized in this subject – the third PANDA Symposium aims at introducing the TDA field to the younger Pacific/Asiatic community.

3. IUPAP Young Scientist Medals in the field of Astrophysics

A call for nominations for the IUPAP Young Scientist Medals in the field of Astrophysics of 2016 and 2017 will be announced in January of 2017. The medals will be awarded during the 29th Texas Symposium on Relativistic Astrophysics on December 3–8, 2017 in Cape Town, South Africa.

Grazina Tautvaisiene
Chair Commission 19

Brief Report on Commission on Computational Physics (C20) Activities

1) C20 Commission

Chair: Hai-Qing Lin (China)

Vice-chair: David P. Landau (US)

Secretary: Joan Adler (Israel)

Members:

Constantia Alexandrou (Cyprus)

Mark Brachet (France)

Ronald Dickman (Brazil);

Hans Fangohr (UK);

Suklyun Hong (Korea);

Masatoshi Imada (Japan);

Georg Kresse (Austria);

Richard Liska (Czech Republic);

Priya Mahadezvan (India);

Lev Shchur (Russia);

Maria-Roser Valent (Germany);

Associate members

Nithaya Chetty (South Africa);

Rodolphe Vuilleumier (France);

Yuan Ping Feng (Singapore)

Observer

Alex Hansen

2) Conference on Computational Physics (CCP) and Others

(a) Conference “Computer Simulations in Physics and beyond” was successfully held 06-10 September 2015 in Moscow, Russia, organized by Professor Lev Shchur of Landau Institute for Theoretical Physics, Scientific Center in Chernogolovka and National Research University Higher School of Economics. Details could be found in: <http://csp2015.ac.ru>.

(b) CCP2015 was successfully held at the Indian Institute of Technology Guwahati, Assam, India from 2 to 5 December 2015, organized by Professors Sitangshu Bikas Santra of the Indian Institute of Technology at Guwahati and Purusattam Ray of the Institute for Mathematical Sciences in Chennai at the IIT campus in Guwahati.

In addition to IUPAP sponsoring and endorsing the event, the American Physical Society (APS), Association for Asia Pacific Physical Society (AAPPS) and the European Physical Society (EPS) are also sponsors and active collaborators. Around 350 physicists and researchers around the world are expected to participate in this conference to discuss the latest developments in the field of computational physics and their applications in widely varied research fields such as nuclear and particle physics, astrophysics and cosmology, accelerator and plasma physics, atomic, molecular and optical physics, condensed matter theory, strongly correlated systems, nano sciences, complex system, chaos and statistical physics, quantum computation, computational biology, fluid mechanics, oceanography, geophysics, computational physics education, etc.

The conference report form can be accessed on the following IUPAP web link:

<http://iupap.org/sponsored-conferences/conference-report-form/>

(c) CCP2016 was successfully held at St George’s Hotel Pretoria, South Africa, 10-14 July 2016, organized by Prof. Nithaya Chetty and Prof. Brian Masara and hosted by the South African Institute of Physics. The organizer will submit the conference report to IUPAP soon.

(d) CCP2017 is going to be held in Paris, France, 09-13 July 2017, organized by Prof. Rodolphe Vuilleumier, Marco Saitta, and Riccardo Spezia. They have booked already the new conference center in the Campus Jussieu (right in the center of Paris) for the conference. See the attached poster.

(e) CCP2018 is going to be held in Davis, California, organized by Prof. Barry Klein, possibly July 29-Aug 02, 2018.

3) Young Scientist Prize (YSP)

(a) The 2015 YSP was awarded to Dr. Wei-Min Wang at Laser-plasma physics of the Institute of Physics, Chinese Academy of Sciences, China “for his significant achievements in computational plasma physics with applications to advanced schemes of inertial confined fusion and novel laser-plasma based particle accelerators and radiation sources.” The prize was presented at the CCP2016, because Dr. Wang cannot attend CCP2015 due to visa problem.

(b) The 2016 YSP was awarded to Dr. Wei-Min Wang at Temple University (then, now at University of Texas at El Paso), USA “for his innovative and deep achievements in developing efficient and accurate density functionals for computation in quantum chemistry, materials science, and condensed matter physics”. The prize was presented at the CCP2016.

(c) The 2017 YSP is calling for nominations. The announcement is also attached.

4) Other Matters

(a) Our commission submitted a supporting letter to IUPAP for the endorsement of ICCP10, which is organized by University of Macau in January, 2017.

H.Q. Lin, C20