



Newsletter

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MARCH 2017

The Council of the International Union of Pure and Applied Physics makes Two Statements about the Executive Order: *Border Security and Immigration Enforcement Improvements*

STATEMENT 1: CONFERENCES

The Council of International Union of Pure and Applied Physics (IUPAP), which represents physicists from 60 countries, is concerned that the continued application of the ban on entry of citizens of Iraq, Syria, Iran, Sudan, Libya, Somalia and Yemen, or indeed a ban on entry of citizens of any country to the US, will require IUPAP to refrain from supporting any conferences in the US until any such ban is lifted.

Noting that physics is inherently an international discipline, and that the success of physics in all countries depends on the ability of physicists to freely collaborate and work with scientists from all other countries, the International Union of Pure and Applied Physics adopted the IUPAP Policy on Free Circulation of Scientists, at its 27th General Assembly in 2011.

[<http://iupap.org/sponsored-conferences/conference-policies/>]

To quote the relevant part of this policy:

“In pursuing its objectives with respect to the rights and responsibilities of scientists, the International Union of Pure and Applied Physics (IUPAP) actively upholds this principle, and, in so doing, opposes any discrimination on the basis of such factors as ethnic origin, religion, citizenship, language, political stance, gender, gender identity, sex, sexual orientation, age or disability. IUPAP should only sponsor conferences and events at institutions and in countries that uphold this principle. If scientists are excluded from attending IUPAP-sponsored international conferences by a host institution or country on the basis of any of these factors, IUPAP should register its concern at the highest level of that institution or country, and should not sponsor any future events in that country until such exclusions have been eliminated.”

Announcement

IUPAP 29th General Assembly will be held from 11th – 13th of October 2017 in Sao Paulo, Brazil. Nominations by members for Executive Council and Commissions will be available on the website from 11 March – 11 June 2017.

Should any bans on entry to the US of citizens of any country be in place in October 2017 when IUPAP determines which conferences it will support in 2018, the IUPAP Policy on Free Circulation of Scientists will require IUPAP to refrain from supporting any conferences in the US.

STATEMENT 2: FREE CIRCULATION OF SCIENTISTS

The Council of International Union of Pure and Applied Physics (IUPAP), which represents physicists from 60 countries, is concerned that bans on movement of people based on nationality will have adverse effects on physics in the US and worldwide.

The Executive Order: Border Security and Immigration Enforcement Improvements has negative consequences for physics in the US and around the world. Graduate students and post-doctoral fellows are workers in scientific research, and they are a very mobile group, going to countries where their research is best supported and where they can lead productive lives. Physics research around the world relies on their dedicated work to fuel its progress. The restrictions placed on the free circulation of scientists by this Executive Order will have unintended consequences on the quantity and quality of physics research done in the US. And because many of the students, when they graduate, work in US industry, the quality of industrial innovation, especially in high-tech industries, will also be adversely affected. It is not in the interests of the US to impose a ban on movement of scientists based on nationality or other very broad criteria.

The free movement of scientists around the world has been an important driver in the progress of science and technology for the last two millennia, and has always been to the great benefit of nations with the strongest science at the time. Continuation of the immigration bans based on nationality is both an assault on the IUPAP Policy on Free Circulation of Scientists, [<http://iupap.org/sponsored-conferences/conference-policies/>] and the policy of our “mother organisation”, the International Council of Science (ICSU) expressed in its Statute 5 – The Principle of Universality (freedom and responsibility) of Science:

“the free and responsible practice of science is fundamental to scientific advancement and human and environmental well-being.”

Such practice, in all its aspects, requires freedom of movement, association, expression and communication for scientists, as well as equitable access to data, information, and other resources for research. It requires responsibility at all levels to carry out and communicate scientific work with integrity, respect, fairness, trustworthiness, and transparency, recognising its benefits and possible harms. And it is an assault on the progress of physics in the US and around the world.

For these reasons, the IUPAP Council respectfully requests that the Executive Order be revoked, that no similar bans on the movement of people based on nationality be implemented, and that the legitimate concerns about the access of terrorists to the US be addressed through more focussed and thus, more effective measures.

Bruce H J McKellar

President, International Union of Pure and Applied Physics

For the Executive Council of the International Union of Pure and Applied Physics

Yoshio Yamaguchi 1926 2016

In Memoriam

IUPAP celebrates the achievements of Yoshio Yamaguchi, President of IUPAP from 1993 to 1996, who died on 12 August 2016.

After his education at the University of Tokyo, Yamaguchi joined Osaka City University where he co-founded a particle-physics group. He then moved to the University of Illinois at Urbana, and then to CERN, to the newly-established theory division. In 1961, he returned to Japan to lead the theory group at the Institute for Nuclear Study (INS) at the University of Tokyo. He was instrumental in the creation of KEK, and became the Director of the INS.



This history of doing physics around the world led Yamaguchi to become deeply involved in international physics. He was a co-founder of the International Committee for Future Accelerators, our first working group, established in 1976, he became the first IUPAP President from Japan, in 1993 and presided till 1996. He was also influential in the creation of the Asia Pacific Center for Theoretical Physics becoming a founding member of its Board of Trustees, in 1996. By the time he became President of IUPAP, he had retired and relied on communications via a fax machine at his home to manage the business of IUPAP and the creation of APCTP.

As I know from being involved in the APCTP steering committee, and from attending the 1993 General Assembly of IUPAP in Nara where he was elected President, and the 1996 General Assembly of IUPAP in Uppsala after which he stood down, retirement did not mean any reduction in his energy. During his Presidency, he was deeply involved, on our behalf, in both the OECD metascience fora, and in the UNESCO Physics Action Council. The IUPAP connection with the OECD, which began under his presidency, continues to the present. Our connection with UNESCO is not as strong now as it was then, and needs to be strengthened.

On a personal level, I saw his work for IUPAP from a distance, and his work for APCTP close up. I value Yoshio Yamaguchi as a wise and forceful contributor to international physics and especially to Asian physics.

In the period of his Presidency, IUPAP was struggling with finding a purpose, feeling that, with the end of the cold war, its role in facilitating the free movement of physicists was over. We now know that the struggle for the free movement of physicists is an ongoing one. It was also working on re-structuring its operations to embrace the changing world of physics. Our most recently formed Commission, C20 — the Commission on Computational Physics, was formed in 1996, as a legacy of his Presidency. Matching IUPAP to the changing way in which physicists see their subject is an ongoing project for IUPAP.

We celebrate the vital contributions that Yoshio Yamaguchi made to the International Union of Pure and Applied Physics, and remember them with gratitude.

ICSU Grants 2017-2019

IUPAP is a Union member of the International Council of Science (ICSU) and has benefited from ICSU Grants of 30,000 EUR for one year in the past. For 2017-2019, the ICSU Grant System was relaunched in response to the recommendations of the ICSU Review, and just 3 grants were given, each worth 300,000 EUR over the three-year period. Its intent is to foster membership engagement by addressing long-standing priorities for ICSU Members in developing **science education, outreach and public engagement activities**, and to mobilise resources for international scientific collaboration.

To encourage greater co-operation between its different Union members, ICSU required that two Unions be co-lead applicants and that one Union be a supporting applicant for each grant. The lead applicants could lead only one grant. Of the three grants awarded, IUPAP is a co-leader, with the International Union of Crystallography, on the project *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 supporting Union is the International Union of Materials Research Societies. And IUPAP is one of the supporting applicants for another of the grants – that of *A Global Approach to the Gender Gap in Mathematical and Natural Sciences: How to Measure It, How to Reduce It?*, led by the International Mathematical Union and the International Union of Pure and Applied Chemistry.

IUPAP is delighted with this result, we congratulate those whose hard work produced it and look forward to reporting the success of the projects in future newsletters.

IUPAP and IUCr Awarded €300K ICSU Grant

Sekazi K. Mtingwa and **Sandro Scandolo** (IUPAP C13 Commission)
Michele Zema (IUCr Outreach Officer)

The International Council for Science (ICSU) has awarded the International Union of Pure and Applied Physics (IUPAP), led by its Commission on Physics for Development (C13), and the International Union of Crystallography (IUCr) a three-year grant totaling €300K for a project entitled *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*. A number of international organisations and laboratories will serve as collaborative partners, including ICSU Regional Offices, the International Union of Materials Research Societies, International Centre for Theoretical Physics, UNESCO, operating light sources around the globe, various light source initiatives in the developing world, and international physics societies.

Advanced light sources are playing a pivotal role in transforming a myriad of disciplines, including biology, chemistry, energy, environment, geoscience, materials science, medicine, paleontology, and physics. Several Nobel Prizes have been awarded for research performed at light sources, often using crystallography. Hence, the proposed project will promote light source and crystallographic sciences in targeted regions of the world. It will focus on training researchers and engaging the public and governmental officials in discussions about the role that light source and crystallographic sciences could play to improve their countries' educational institutions, economies, social structures, health and world competitiveness.

The project will be named *Lightsources for Africa, the Americas, and Middle East Project (LAAMP)*, where the Americas will focus on Mexico and the Caribbean. LAAMP will perform the following tasks:



Researcher & Student Participants, First African Light Source Conference & Workshop, European Synchrotron Radiation Facility (ESRF), Grenoble, France, November 2015

1. Ascertain the level of light source and crystallography usage among researchers in Africa, Mexico, Caribbean, and Middle East, and develop light source and crystallography *Strategic Plans* for these regions.
2. Institute a Colloquium Programme that sends light source and crystallography users to universities and other institutions to give lectures and interact with researchers, students, secondary schools, governmental officials, and the general public.
3. Publish and disseminate a brochure that will explain in layman's terms what light sources and crystallography are and how they are revolutionizing many disciplines.
4. Grow and enhance the use of light sources and crystallography among researchers in these regions by promoting and facilitating researcher and student short- and long-term visits and study at international light source and crystallography facilities and schools.
5. Launch five more IUCr-UNESCO OpenLabs, which will be part of a network of operational crystallography laboratories in various developing countries worldwide.
6. Convene a meeting of light source and crystallography users, government officials, and other stakeholders and interested parties at UNESCO's Headquarters in Paris during 2019 to present the *Strategic Plan* for each region; set the charge for more detailed *Business Plans* with short-, medium- and long-term goals, including the charge to ascertain the feasibility of constructing an advanced light source in each region where one does not already exist; and finalize a *Roadmap* for moving forward. A similar meeting at UNESCO successfully launched the SESAME light source project in the Middle East that started commissioning in Allan, Jordan at the end of 2016.

Unlike the Middle East, no advanced light source operates in Africa, Mexico or the Caribbean. However, interested parties have launched an initiative in Mexico to construct one there. The European Synchrotron Radiation Facility hosted the First African Light Source (AfLS) Conference and Workshop in November 2015. At that meeting, participants adopted a set of resolutions, dubbed *The Grenoble Resolutions*, which enumerated the reasons for an AfLS and a roadmap to chart a path forward, and

elected a Steering Committee to drive the roadmap. Cuba, in March 2016, hosted a conference in Havana on high brightness beams, where there was a roundtable discussion on the idea of a Caribbean Light Source. With ICTP's and ICSU Regional Offices' assistance with managing much of the travel logistics, LAAMP will build upon these initiatives to grow and enhance light source and crystallographic sciences in the regions, thereby empowering their peoples to benefit from such research as tackling devastating viruses such as Zika, Ebola and HIV. Moreover, considerable progress will be achieved in the desire toward sustainable sources of clean energy, and the regions contain important archaeological and paleontological treasures to be explored by light source beams. Thus, a major outcome of this project will be a buy-in by governmental officials that advanced light sources and crystallography will bring major advances in their countries' socioeconomic development.

A Global Approach to the Gender Gap in Mathematical and Natural Sciences: How to Measure It, How to Reduce It?

ICSU has awarded one of three grants, of EUR 300 000 each over three years, to a new joint project led by IMU and IUPAC, strongly supported by IUPAP, with the participation of IAU, IUBS, ICIAM, the UNESCO Section on Science Policy and Partnerships and GenderInSite.

By a fortunate accident, the grant was announced a week before 11 February, when we celebrated the International Day of Women and Girls in Science. The Day was established by the United Nations to promote the full and equal participation of women in science. The decision was not only made on the grounds of basic human rights but also because it is considered that the full participation of women is fundamental to advance with the goals of the UN 2030 Agenda to end poverty, promote well-being, ensure inclusive quality education and achieve sustainable development.

Although the number of women in higher education increased dramatically since the beginning of the 20th century, the number of women who study and choose careers in Science, Technology, Engineering and Mathematics (STEM) is still not large worldwide. This is particularly acute in the case of Physics and Mathematics, and in the case of developing countries.

Serious attempts to improve this situation rely on good data.

Some pioneering work was done by the IUPAP Working Group 5 (the Working Group on Women in Physics), who sponsored surveys before its first two International Conferences. In 2008, it decided to expand the scope of these investigations and committed the American Institute of Physics Statistical Research Center to perform a Global Survey of Physicists which had about 15,000 male and female respondents from 130 countries¹. The survey revealed sex-based differences in resources, professional opportunities and family responsibilities. Differences across regions and countries were also observed. The results aid decisions about where interventions are best targeted. The field is moving rapidly, and we think the situation is improving, but the survey is out of date. Many countries have new leadership, and attitudes to women in science are undergoing a multitude of changes; regions such as Africa are evolving economically; and we need to know what trends can be found in the participation of women in science and in physics.

In Mathematics, a recent study on publication patterns based on comprehensive metadata sources showed a systemic gender imbalance in the publication distribution of mathematicians over four decades of data.



IUPAP WG on Women in Physics met in Birmingham 2016

Left to right: Manling Sui, Lilia Meza Montes, Gillian Butcher, Prajval Shastri, Silvina Ponce Dawson, Jackie Beamon-Kiene, Nicola Wilkin, Shohini Ghose, LC Kwek, Igle Gledhill, Renee Horton, and Dina Izadi on Skype.

Both of these approaches can be usefully extended to more sciences, and the project funded by ICSU will do just that.

IUPAC has a special role in reaching industry, through its Chemistry and Industry Committee, and it has contributed very valuably through the IUPAC Company Associates. The two lead Unions, with IUPAP and the other participants, have active outreach programs which are being utilised to encourage more women, especially in Asia and Africa, to move into STEM fields of study.

The project will

1. Gather evidence via both a joint global survey and a study of publication patterns to provide reliable data, on which to orient future actions
2. Collaborate with social scientists working in gender and science, and study contrasts and commonalities across regions and cultures, less and more highly-developed countries, and across different disciplines
3. Provide easy access to materials to encourage young women to work in our fields, including information about careers and salaries directed at parents, schools, and others who influence the careers of girls, in particular, in the developing world
4. Recommend practical policies and actions that will reduce the gender gap.

The involvement of six scientific unions, UNESCO and GenderInSite, constitutes a large international and multidisciplinary collaboration, and IUPAP is delighted that Working Group 5 has been able to help foster this project.

¹Rachel Ivie and Casey L. Tesfaye, *Physics Today* **65**, 47 (2012); doi: 10.1063/PT.3.1439

IUPAP YSP 2016

IUPAP Young Scientist Prize in Nuclear Physics 2016 (C12)

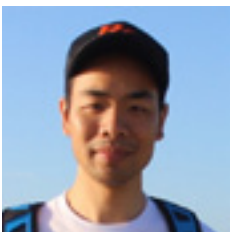


Andreas Ekström

“For his groundbreaking contributions in the optimization of nuclear interactions from chiral effective field theory using advanced physical and mathematical tools in quantifying the theoretical uncertainties. This has allowed accurate ab initio many-body calculations in the areas of nuclear structure and reactions, reproducing for the first time both nuclear binding energies and radii in higher precision and giving realistic saturation properties of nuclear matter.”

Andreas Ekström received his Ph.D. in physics from Lund University, Sweden, in 2010. For his thesis work, he studied exotic isotopes using the ISOLDE radioactive ion beam facility at CERN in Geneva. Since then he has shifted his research to theoretical nuclear physics, and has primarily been working on computational methods for describing the low-energy properties of the atomic nucleus starting from a theory for the strong interaction between the nucleons. In particular, he has made groundbreaking contributions in the optimisation of nuclear interactions from chiral effective field theory using advanced physical and mathematical tools in quantifying the theoretical uncertainties.

Between 2010 and 2016, he was a post-doc at Oslo University, Michigan State University, and the University of Tennessee. Since 2016, he has been an Assistant Professor at Chalmers University of Technology, Gothenburg, Sweden.

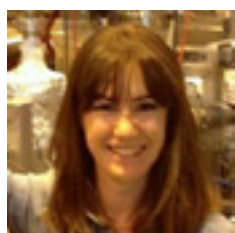


Haozhao Liang

“For his development of a fully self-consistent random phase approximation (RPA) based on the density-dependent relativistic Hartree-Fock (RHF) theory and for establishing a fully self-consistent charge-exchange quasiparticle RPA with both isovector ($T=1$) and isoscalar ($T=0$) proton-neutron pairing, based on the RHF-Bogoliubov framework. This result allows the systematic investigation of β -decay half-lives of neutron-rich nuclei and the β^+ decays and electron captures of proton-rich nuclei with potential implications towards the remarkable speeding up of the astrophysical r -process flow.”

After his Bachelor in 2005, Dr. Haozhao Liang continued his study in Peking University (PKU), China, by entering a 5-year Ph.D. program in theoretical nuclear physics. From 2006 to 2007, Haozhao visited Institut de Physique Nucléaire Orsay in France several times on a scholarship from the Asia-Europe Link Program. These visits were followed by his successful application for the co-supervision Ph.D. program funded by the French Embassy in China. In 2010, Haozhao obtained his Ph.D. degrees from both PKU and Université Paris-Sud under the co-supervision agreement, and he continued his work in PKU as postdoctoral fellow until 2012. Haozhao then joined the RIKEN Nishina Center as Japan Society for the Promotion of Science (JSPS) postdoctoral fellow, and later on Foreign Postdoctoral Researcher of RIKEN. Haozhao was promoted to tenured Research Scientist in RIKEN in April 2015, and he was invited as guest Associate Professor at the Graduate School of Science, the University of Tokyo from April 2016.

Dr. Haozhao Liang's research interests are mainly in nuclear density functional theory (DFT), and the relevant interdisciplinary applications in nuclear physics, nuclear astrophysics, and particle physics. He was awarded the IUPAP Young Scientist Prize for his development of fully self-consistent theories within the relativistic DFT framework. This result allows the systematic investigation of β -decay half-lives of neutron-rich nuclei and the β^+ decays and electron captures of proton-rich nuclei with potential implications for the remarkable speeding up of the astrophysical r-process flow.



Kara Marie Lynch

“For the development and realization of the collinear resonance ionization (CRIS) method for sensitive laser spectroscopy measurements of exotic atomic nuclei and its possible use to separate short-lived isomeric states. This method combines the high resolution of the laser spectroscopy with the high efficiency and selectivity of resonant ionization improving the sensitivity by orders of magnitude. Very pure isomeric beams could be produced by this method allowing the study of their decay properties.”

Kara Marie Lynch graduated from the University of York, UK, in 2010. She obtained her Ph.D. in 2013 from the University of Manchester, UK, on the topic of laser-assisted nuclear decay spectroscopy of neutron-deficient francium isotopes. Following her Ph.D., she was a FWO Marie Curie Pegasus Research Fellow with KU Leuven, Belgium, and is currently a CERN Research Fellow. In 2013, she was awarded the UK's Institute of Physics Nuclear Physics Group Early Career award. Since 2010, she has been based at the ISOLDE facility, CERN, working on the Collinear Resonance Ionization Spectroscopy (CRIS) experiment, and developing the technique of laser-assisted nuclear decay spectroscopy. This novel setup combines high-resolution laser spectroscopy and nuclear-decay spectroscopy to provide nuclear-structure measurements of short-lived exotic isotopes.

IUPAP 2016 Young Scientist Prize in Magnetism (C9)



Dr. Wei Han, Peking University, China

“For significant contributions to spin injection, spin transport and spin relaxation in graphene, and to the discovery of interface transparency and triangular antiferromagnetic IrMn₃ for spin orbit torque in magnetic heterostructures.”

The award will be presented to Dr. Han at the next International Conference on Magnetism (ICM), which will take place in San Francisco, July 15-20, 2018.

Dr. Wei Han has been a tenure-track assistant professor at the International Center for Quantum Materials (ICQM) at Peking University since 2014. He received his Ph.D. in physics at the University of California, Riverside in 2012. Then, he spent two and a half years at IBM Almaden Research Center as a postdoctoral associate. Dr. Han's main research focus has recently been on graphene spintronics, spin orbit torque in magnetic heterostructures, and two-dimensional quantum interfaces/materials. Dr. Han is the recipient of the 2009 AVS Leo Falicov student award and the 2012 APS GMAG student dissertation award.

C10: Structure and Dynamics of Condensed Matter



Dr. Cui-Zu Chang, from the Francis Bitter Magnet lab, Massachusetts Institute of Technology, has been elected to be the Young Scientist Award winner for 2017 *“For the discovery of quantum anomalous Hall effect in magnetically doped 3D topological insulator films.”*

Dr. Cui-Zu Chang received his Ph.D. in Condensed Matter Physics from Tsinghua University in 2013, and is a postdoctoral at Francis Bitter Magnet lab, Massachusetts Institute of Technology (MIT) since graduation. His research interests are quantum coherent systems such as topological insulators (TI) and in particular, topics such as quantum anomalous Hall (QAH) effect, layered 2D materials, interface superconductivity, triplet superconductivity and tunneling phenomena. A pioneer in observing QAH in a 3D TI, he is a well-known and leading young expert in the rapidly developing field of TI with many highly-cited publications in the field and worldwide collaborations. He holds several awards, including the Switzerland Dimitris N. Chorafas Foundation Award (2013). He will start his assistant professorship at Department of Physics, Penn State University in January 2017.

2016 IUPAP Young Scientist Award in Medical Physics (AC4)



Francis Hasford, Ph.D.

Medical Physics Department, School of Nuclear and Allied Sciences, University of Ghana

Dr. Francis Hasford is a Senior Research Scientist with the Radiological and Medical Sciences Research Institute of Ghana Atomic Energy Commission and also serves as Lecturer and Head of the Medical Physics Department of the School of Nuclear and Allied Sciences, University of Ghana. Dr. Hasford obtained his Masters and Ph.D. degrees in Medical Physics from the University of Ghana in 2006 and 2015 respectively. His Ph.D. thesis titled *“Ultrasound and PET-CT Image Fusion for Prostate Brachytherapy Image Guidance,”* was undertaken through IAEA sandwich fellowship programme between the University of Ghana and the University of Witwatersrand (South Africa). This research was performed under the supervision of Prof. John Amuasi, Prof. Kwame Kyere and Prof. Mboyo Di-Tamba Vangu. The outcome of his study has been presented at national and international conferences and was adjudged best poster presentation at the Maiden University of Ghana Doctoral Conference. His research interest covers medical imaging in support of radiation therapy. Dr. Hasford is the Deputy General Secretary of Ghana Society for Medical Physics, Chairman for the Education and Training Committee of the Federation of African Medical Physics Organizations (FAMPO), and Ghana’s Coordinator for the IAEA Technical Cooperation Project RAF 6044 (Medical Physics in Support of Cancer Management). In 2016, he served as visiting lecturer on behalf of the IAEA for the Medical Physics Masters Programme at the National University of Science and Technology, Bulawayo, Zimbabwe.

Conference Reports

The Second World Conference on Physics Education (WCPE), held in Sao Paulo – Brazil from 11/07/16 - 15/07/16 was on the theme, “Contemporary Science Education & Challenges in the present society: Perspectives in Physics teaching & learning”. One of the new works that was presented with the symposium papers was on the theme “Physics education and diversity in society”. It was jointly presented by Antonia Candela Martin (INP, México), Tanja Tajmel (Professional School of Education, Germany) and Katemari Rosa (State University of Paraíba, Brazil). Issues dealing with differences in Physics Education from the gender, race and ethnicity perspectives were presented.



International Symposium on Nuclei in the Cosmos (ISNC) held in Niigata, Japan from 19/06/16 - 24/06/16, focused on the experimental studies mostly at RIKEN, that were able to reach, for the first time, a large number of neutron-rich nuclei expected to be involved in the r-process by measurements of lifetime and other spectroscopic quantities.



14th conference on Integral Methods in Science and Engineering (IMSE), held at the Department of Mathematics, University of Padua, Italy from 25/07/16 - 29/07/16, focused on resonance for plasmonic nanoparticles, singular perturbation problems and the instability of suspension bridges. New techniques to solve boundary value problems in terms of integral equations, for the space time boundary element methods for the heat equation, were discussed alongside the recent applications of operator theory to problems of (magneto-)hydrodynamics and for photonic crystals, wave phenomena, Wiener-Hopf techniques.



The 4th Biennial African School of Fundamental Physics and Applications (BASFPA), was held at University of Rwanda, Kigali Rwanda from 01/08/16 - 19/08/16. The scientific program was extended with the addition of a 2-day workshop for high school teachers from Rwanda and a 3-day outreach to secondary schools. 20 high school teachers attended the workshop whose aim was to train the teachers for improved physics teaching skills. For the outreach to secondary schools, a visit to one school with about 50 pupils was organised, each day. The aim of the outreach to secondary schools was to motivate/educate high school learners in fundamental physics and applications. The teachers workshop and the outreach to schools was attended by 75 students. The ratio of female to male student participation was 29:46. The 5th edition of the African School of Physics will take place in Namibia in 2018.



International Conference on Quantum Fluids and Solids 2016 (QFS2016) was held in Prague, Czech Republic from 10/08/16 - 16/08/16. Three important matters were discussed. Firstly, the discovery of collective modes of the order parameter in topological superfluid ^3He , which are analogous to Higgs boson of the Standard Model of particle physics, and fermionic excitations of Majorana, Weyl or Dirac character. Secondly, the experimental evidence of quantum vortices with half the quantum circulation in various spinor superfluid systems and in superfluid ^3He . Thirdly, the detection of supercurrent of magnons by Brillouin light-scattering spectroscopy in a magnon Bose-Einstein condensate at room temperature.



19th International Symposium on Very High Cosmic Ray Interactions (ISVHCRI) was held in Moscow, Russia from 22/08/16 - 27/08/16. All the presented reports contained new advances and recent results from several of the largest cosmic ray and gamma-ray experiments, e.g., AUGER, TA/TALE, HAWC, ICECUBE/ICETOP, TUNKA/TAIGA, NEVOD, TIEN SHAN, PAMIR, GRAPES-III, ARGO, and LHAASO. Analysis of the air shower experiments needs accurate hadronic models for their interpretation tuned in accordance with recent collider data from LHC and RHIC. New collider results relevant to cosmic ray studies were also discussed at the Symposium.



22nd International Congress on Acoustics (ICA2016), was held in Buenos Aires, Argentina from 05/09/16 - 09/09/16. The ICA Congresses belong to a series of events held in a three-year cycle, which cover all areas of acoustics. At ICA2016, two plenary lectures deserve mention, they correspond to a new vision of acoustics application, its interrelation with the human being's health and well-being. They were respectively: 'Understanding music perception from the perspective of oscillation and resonance', by Frank Russo, from Canada, and "How the brain makes sense of complex auditory scenes", by Barbara Shinn-Cunningham, from USA."



18th International Conference on the Physics of Highly Charged Ions (HCI-2016), was held in Kielce, Poland from 11/09/16 - 16/09/16. Three new and important works were discussed alongside future development of the physics of highly-charged ions. They were – ‘Coulomb crystallization of highly charged ions’ by Lisa Schmoeger, ‘Quantum logic spectroscopy of trapped ions’ by Piet O. Schmidt and ‘Charge equilibration and energy loss of slow highly-charged ions in single layer graphene’ by Elisabeth Gruber.



The XXIII International Baldin Seminar on High Energy Physics Problems – ‘Relativistic Nuclear Physics and Quantum Chromodynamics’, was held in Dubna, Russia from 19/09/16 - 24/09/16. At the Seminar, the most recent results of widely-known experiments were presented. There were also reports about theoretical analysis of these results and the status and development of modern experimental setups. One of the talks was devoted to a study of new states of hadronic matter from the data on exclusive meson production with the CLAS setup at JLab. For the first time, the mass, the total and the pion-Delta and rho-p partial decay widths were determined from the CLAS data offering access to the structure of the new baryon state.



Entrepreneurship Development for Physicists (EDP), was held in Baroda, Gujarat, India from 19/9/16 – 21/9/16. The workshop was in partnership with the Maharaja Sayajirao University of Baroda (MSU). The intensive three-day workshop aimed to provide participants with knowledge of how to commercialise any business idea. Sessions focused on the importance of networking, business and financial planning, intellectual property and taking ideas to market. The program also included sessions specific to the Indian context, with talks ranging from the importance of entrepreneurship in India to in-country financing options to case studies of previous inventions to demonstrate the possibilities. Sessions also focused on what problems are currently facing India as a nation, and highlighting solutions that needed to be found.



UPCOMING SUPPORTED CONFERENCES 2017 (UP TO JULY)

3–7 April 2017 Vina Del Mar, Chile

8th International Conference on the Frontiers of Plasma Physics and Technology (ICFPPT 8)

3–7 April 2017 La Falda, Córdoba, Argentina

Grav17 (GRAV17)

14–19 May 2017 Copenhagen, Denmark

International Particle Accelerator Conference 2017 (IPAC 17)

21–26 May 2017 Prague, Czech Republic

8th International Conference on the Physics of Dusty Plasmas (ICPDP 8)

28 May–2 June 2017 Park City, Utah, USA

Advances in Radioactive Isotope Science (ARIS 2017)

5–8 June 2017 Mallorca, Spain

Conference on Crossroads in Complex Systems (CCCS 2017)

5–9 June 2017 Rio de Janeiro, Brazil

International Conference on Biological Physics (ICBP2017)

12–16 June 2017 Nanjing, China

The 3rd PANDA Symposium on Multi-wavelength Time Domain Astronomy (3rd PANDA)

24–28 June 2017 The Abdus Salam International Centre for Theoretical Physics (ICTP), Italy

Frontiers in Olfaction (FIO 2017)

3–7 July 2017 Dublin, Ireland

GIREP-ICPE-EPEC 2017 (GIREP 2017)

5–12 July 2017 Lido di Venezia, Venice, Italy

EPS-HEP 2017 (EPS-HEP 2017)

9–13 July 2017 Paris, France

Conference on Computational Physics (CCP 2017)

9–14 July 2017 Lisbon, Portugal

International Conference on Phenomena in Ionized Gases (ICPIG)

9–14 July 2017 Pasadena, CA, USA

Edoardo Amaldi Conference on Gravitational Waves (AMALDI)

12–20 July 2017 Busan, South Korea

International Cosmic Ray Conference (ICRC)

25–29 July 2017 Sudbury, Canada

XV International Conference on Topics in Astroparticle and Underground Physics (TAUP 2017)

26 July–1 August 2017 Cairns, Australia

XXX International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC)

31 July–4 August 2017 Tlaxcala, Mexico

XLVII International Symposium on Multiparticle Dynamics (ISMD2017)

31 July–4 August 2017 Pennsylvania State University, USA

Joint Conference EP2DS22-MSS18: 22nd International Conference on Electronic Properties of Two Dimensional Systems and 18th International Conference on Modulated Semiconductor Structures (EP2DS22-MSS18)

UPCOMING ENDORSED CONFERENCES 2017

15–19 May 2017 University of Warsaw, Poland

International Conference on Precision Physics and Fundamental Constants (FFK 2017)

12–16 June 2017 Nanjing, China

The 3rd PANDA Symposium on Multi-wavelength Time Domain Astronomy (3rd PANDA)

16–21 July 2017 University of Buffalo

EDISON'20: The 20th International Conference on Electron Dynamics in Semiconductors, Optoelectronics and Nanostructures (EDISON 20)

26 July–1 August 2017 Australia

XXX International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC2017)