



International Union of Pure and Applied Physics

Newsletter

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PRESIDENTS' NOTE

We are writing this note after having celebrated the 30th IUPAP's General Assembly which took place virtually on October 20-23, 2021. The 30th GA introduced many important changes marking a turning point in the existence of the Union. These changes are in line with the expanded aims and renovated viewpoints spelled out in the recently adopted Strategic Plan with which the Union is beginning its second century of existence. As explained in a separate article, the GA voted positively the transformation of the IUPAP into an association under Swiss law. The composition of the Executive Council (EC) has been updated to accommodate to this new situation, with a position of General Secretary for Legal and Financial Affairs based in Switzerland for which Dr Jens Vigen from CERN in Geneva, Switzerland, has been selected and a position of General Secretary for Administrative Affairs for which Prof. Stefano Fantoni from Fondazione Internazionale Trieste in Italy has been selected. Other changes in the EC's structure (such as the newly created position of Vice President at Large with the responsibility for Outreach and Ethics) have been made to better advance along the lines of the Strategic Plan (for the full list of newly appointed officers, please read "IUPAP acquires a new legal status and looks for a very special 2022").

The articles of the new association include the possibility of having, besides Territorial Members, Corporate Associate Members with no vote but with the right to take the floor in all General Assemblies. GAs, on the other hand, will be held yearly combining online and in-person assemblies. The election of officers and commission members will occur at the in-person GAs, which will be held triennially. The terms of all officers and commission members elected at the 30th GA in 2021 will last three years (till 2024). The 2024 GA will be held in person, probably, in Beijing, China. Depending on the situation at the time, it might have a hybrid format with the participation of Commission Chairs and EC members in person and with other participants connected online. The GA in 2022 will be virtual without elections and will be held immediately after the centenary symposium on July 14th, 2022 (EC&SCC meeting will be held in person in Trieste before the Centenary symposium that is going to take place at the ICTP on July 11-13, 2022). The GA in 2023 will be held in hybrid mode, with the in-person part at CERN in Geneva, Switzerland, where the closing ceremony of IYBSSD and of the celebrations of the IUPAP's centenary will take place. No election of commission chairs or members and no changes in the EC and Officers will occur at this GA. Only the names of the designated chairs of commissions to be elected in the GA

2024 will be shared. This will avoid designating members of commissions, starting their job one year later and to designate EC members starting their job one year later.

The structural changes were not limited to the EC composition or the Union's legal status and regulations. The creation of new Affiliated Commission and Working Groups was also decided, as described in what follows. A renovated IUPAP emerged from the 30th GA to enter its second century of existence. We are very happy with these changes that signal the beginning of a very exciting time for the IUPAP, a time during which we expect to expand our actions and advance with our aim of contributing to develop solutions to the many problems that humanity currently faces.

Michel Spiro, Bruce McKellar, Silvina Ponce Dawson

Michel Spiro

President of IUPAP

Chair, Steering Committee for the proclamation of IYBSSD 2022

Bruce McKellar

Past President

Silvina Ponce Dawson

Acting President Designate

Updates from IUPAP's Desk

New Affiliated Commissions and Working Groups.

Part of the IUPAP's restructuring approved at the 30th GA was the decision to create two Affiliated Commissions (the International Commission of Physics Students, AC5, and the International Commission on the History and Philosophy of Physics, AC6) and two Working Groups (the Working Group on Ethics, WG18 and the Working Group on Quantum Science and Technology, WG19). The selection of the members of the two WGs is still pending and will be decided soon by the EC in consultation with Commission Chairs.

New Affiliated Commissions

The International Commission of Physics Students, AC5, was born out of the request of the International Association of Physics Students ({iaps}) to become an Affiliated Commission of IUPAP. In a previous Newsletter, {iaps} introduced itself as a non-profit, non-governmental organization run entirely for and by physics students from around the world. Born over 30 years ago, it is now present in over 50 countries, supporting local groups at universities and national Physics student societies in promoting transnational cooperation on multiple dimensions. AC5 will assist IUPAP in promoting the important work done by physicists among current and future generations and advocating for the opportunities and best practices that we think should rule the practice of the discipline. It will serve as a bridge between the working researchers of the present who are IUPAP's members, and the students in every field of physics around the world who, being IAPS' members today, may well be IUPAP's contributors tomorrow. We expect that AC5 will help us advance with the goals of enhancing the vital role of early career physicists and promoting evidence-based physics education of the highest quality all over the world.

The International Commission on the History and Philosophy of Physics, AC6, is based on the Memorandum of Understanding signed by the presidents of the IUPAP and of the Division of History of Science and Technology of the International Union of History and Philosophy of Science and Technology (IUHPST/DHST) which established the creation of the Inter-Union Commission on the History and Philosophy of Physics (IUCHPP) with a double affiliation, IUPAP-IUHPST/DHST. The Chair of AC6 is Jaume Navarro from the University of the Basque Country in San Sebastian, Spain. The first IUPAP representatives on this Commission are: Roberto Lalli from the Max-Planck-Institut für Wissenschaftsgeschichte in Berlin, Germany; Gisela Mateos from Centro de Investigaciones Interdisciplinarias en Ciencias y Humanidades of UNAM in Mexico City, Mexico and Joseph D. Martin from the Department of History of Durham University in the UK. The aims of this Inter-Union and Affiliated Commission are: to promote the study and teaching of the history and philosophy of physics and related sciences across cultures and chronological periods nurturing cross-disciplinary interactions; to facilitate communication among researchers; to support early career scholars in these fields. We expect that AC5 will be directly involved in the celebrations of the IUPAP Centenary and that it will also liaise with the Vice-President at Large with the responsibility for Outreach and Ethics, Laura H. Greene, and with the recently created Working Group on Ethics (see below) to advise the IUPAP on ethics

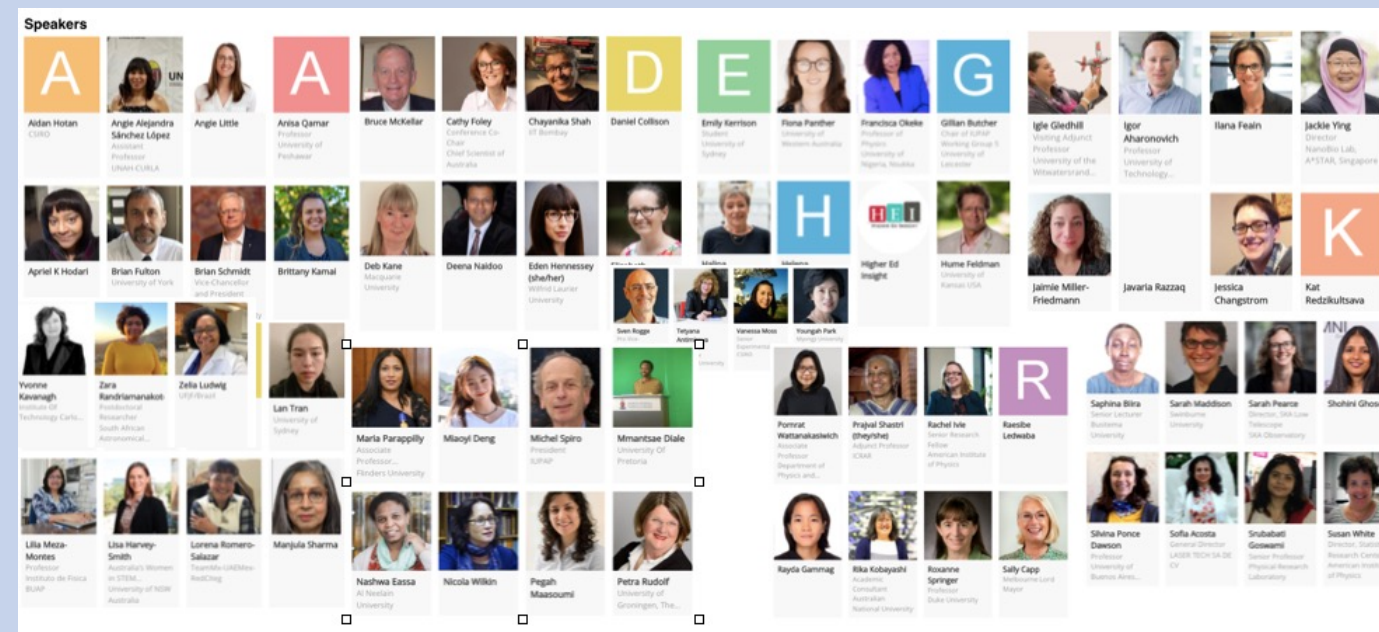
and related issues that are of key importance, as spelled out in our Strategic Plan.

New Working Groups.

The Working Group on Ethics, WG18, was formed with the mission of surveying international ethics standards across societies, journals, and funding agencies, including hiring practices, and to consider these accumulated data to develop a set of international ethics standards. The goal is to apply this mission first to ethics concerning traditional scientific misconduct, including plagiarism, misuse of public funds, fabrication or misrepresentation of data, and accuracy in self representation. Later, in collaboration with WG5, its mission will be extended to prevent and establish lines of actions in cases of harassment and sexual misconduct. The inputs from the Affiliated Commission on the History and Philosophy of Physics and of the Vice-President at Large with responsibility for Outreach and Ethics will be key, as well, to advance with these goals. The Working Group on Quantum Science and Technology, WG19 was created to analyze the creation of a new IUPAP Commission on Quantum Information Science and Technology (QIST). As mentioned in the original proposal submitted by the US Liaison Committee, QIST has become a forefront research area in modern physics that intersects with many other disciplines and physics subfields including atomic, molecular, optical and condensed matter physics. Research efforts cut across computer science, mathematical, applied physics and engineering disciplines. While features like superposition and entanglement have been part of quantum mechanics essentially from its birth, today's technologies make their study and exploitation possible in novel and profound ways opening new technological opportunities and outcomes.

On Diversity and Inclusiveness

The goal to increase diversity and inclusion underlies many of the Resolutions approved by the IUPAP's 30th General Assembly.



Speakers of the 2021 IUPAP International Conference on Women in Physics

The 30th IUPAP General Assembly approved many resolutions that are directly or indirectly related to the aim of increasing diversity and inclusion in physics. First of all, the Waterloo Charter for Gender Inclusion and Diversity was adopted to guide IUPAP's future actions on the subject. Drawing inspiration from the Baltimore Charter for Women in Astronomy, the Pasadena Recommendations for Gender Equity in Astronomy and the IoP's Project Juno, the Charter was initiated in 2014 at the Vth IUPAP International Conference for Women in Physics (ICWIP). The first draft was finalized at the VIth ICWIP in 2017. This draft was widely circulated for comments. With the input of a variety of people, the Charter got its current shape. It is accompanied by a Supporting Information file containing examples of strategies, actions, policies and recommendations that can be adopted by institutions, physical societies or communities, adapting them to the particularities of each country and culture. We are committed to continuously update and disseminate this list. We expect the principles of the Charter to be upheld by the physics communities and societies from all over the world.

The 30th GA also expanded the mandate of the Working Group on Women in Physics (WG5) and charged the Vice-President at Large with Gender Champion duties to put together a team that will look into the possibility of expanding the aims of the Working Group to embrace all forms of diversity and inclusion or if the goal of increasing diversity in multi-dimensional aspects will be best served as a separate group.

The three resolutions approved on IUPAP's awards are also related to diversity and inclusion. Based on recommendations that came out of the VIIth ICWIP, a resolution was approved to guarantee the integrity of IUPAP's Awards recipients. Another resolution approved

changing the name of the IUPAP Young Scientist Award to Early Career Scientist Award and required that periods of career interruptions be excluded when counting the years of research experience after the PhD. Finally, a resolution was approved mandating Commission Chairs to ensure the diversity of the pool of candidates for Awards, particularly in terms of gender and other underrepresented groups and geographical regions. In order to monitor progress, Commission chairs were requested to provide, whenever possible, gender segregated statistics on the number of candidates nominated, shortlisted and awarded.

Finally, the two resolutions related to conferences are also motivated in guaranteeing inclusion in IUPAP's sponsored and endorsed activities by requiring that organizers take into strict consideration issues of accessibility restrictions and, considering the devastating effects of the COVID19 pandemic, ease the registration fees of participants with difficulties, especially of women that have been affected by job changes or caregiver-responsibilities.

The final list of Resolutions approved by the 30th IUPAP General Assembly can be found on the IUPAP's website.

News from IUPAP

Laura Greene appointed to the President's Council of Advisors on Science and Technology in the US.



Laura Greene, former Chair of the IUPAP Commission on Structure and Dynamics of Condensed Matter (C10) and current Vice-President at Large with the responsibility for Outreach and Ethics of our Union has been appointed to the US President's Council of Advisors on Science and Technology (PCAST) on September 22, 2021. Established in 2001, PCAST consists of distinguished individuals from industry, academia, and non-profit organizations who advise the US President on policy matters where the understanding of science, technology and innovation is key. "I am humbled and honored to be selected to advise the president on science and technology policy," said Laura Greene to APS News. We are certain that Laura will bring into this Council some of the key ideas that underlie IUPAP's goals, particularly those that seek to promote the use of physics to solve the problems of concern for humanity.

Impacts of COVID-19 Pandemic on Postdoctoral Fellows and Scholars

It is no secret that the COVID-19 pandemic has been posing serious challenges for numerous careers. Nevertheless, certain groups of society were affected more heavily due to the nature of their work. Postdoctoral fellows and scholars, the highly qualified early career researchers, have been one of those groups. The last two years have been a difficult time for the postdoctoral communities across the globe who were trying to not only manage their current tasks and research projects but also eventually transitioning into a long-term career. The challenges include but are not limited to reduced scientific productivity, increased family responsibilities, and mental health issues caused by enormous levels of stress and anxiety due to the lost time and the ambiguous future of jobs and career advancement. Across North America and around the globe, the university campuses and research centers were closed for several months, and even after reopening, access to the labs and scientific equipment has been significantly limited. The lack of access to key physical and technical resources and the necessity of taking care of their family members and kids who could no longer spend their day in childcare, are just a few of the many aspects that the pandemic influenced the postdoctoral lives. In addition, the majority of academic (and non-academic) positions were impacted by the coronavirus pandemic leading to hiring freezes. Although work-from-home or hybrid working solutions seemed to

be a gleam of hope, productivity did not remain the same as in the pre-pandemic times. Furthermore, although there was a limited chance of learning non-academic professional skills such as networking skills during regular academic life, the pandemic impacted that ray of hope and shut it down completely.

The pandemic itself has caused much worry, stress, and grief for individual members of society. These mental health impacts have been even worse for postdoctoral fellows and causing acute symptoms in the early career researchers who were already in a stressful time of their life, particularly for those who experienced pre-existing mental health issues. The pandemic also caused extra stress for postdoctoral fellows and scholars who were close to the end of their contracts. Several inquiries were reported by the postdocs across Canada concerning their contracts and the potential measures that the universities were putting into place to support them during these unprecedented times. Some were concerned as their contracts were coming to an end in the middle of the lockdowns, while there was not enough time to finish their experiments, or even worse, find a new position (income source). In response to these challenges, some federal funding agencies, for example NSERC in Canada, have offered a one-year extension of funding to early-career researchers (Discovery Grant holders in Canada) and continued to support postdoctoral researchers. While

these efforts have been effective for many early-career scientists, the guidelines depended on the funding agency for each postdoc and supervisor. As such, not every postdoctoral researcher or early career scientist could benefit from such programs.

The pandemic is going to be hopefully over soon, but its side effects will stay with many postdocs for an extended period of time. Hopefully, the lessons learned from such an unfortunate time will open new doors to support the postdocs in the present and for any potential future crisis.

Natural Sciences and Engineering Research Council of Canada

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2020 IUPAP Medal for Outstanding Contributions to The Enhancement Of Physics In Developing Countries: Paul Wofo



Citation: For his many exceptional contributions to the development of physics in Cameroon and the African continent, including founding the Cameroon Physical Society, co-organizing several research collaborations between Cameroon and other countries, founding the Sci-Tech Service to facilitate research on topics of local development, and organizing a series of International conferences on applications of physics to real life problems in developing countries.

A dominant force in the promotion, development and applications of physics in Cameroon, and throughout Africa more generally, Paul Wofo has served on the faculty at the University of Yaoundé I in Cameroon since 1992, becoming Professor of Physics in 2005 and Director of the Laboratory of Modelling and Simulation in Engineering, Biomimetics and Prototypes. All his school education took place in Cameroon, from the primary level to the doctorate, and he defended his Doctorat 3ème cycle in 1992 and his Doctorat d'Etat in 1997. The main topic of the research for his two doctorates was the dynamics of short topological solitons in diverse materials, including ferroelectric materials, hydrogen-bonded materials, surfaces, and biological systems. During his career, Wofo has published some 250 articles in international refereed journals in various fields of fundamental and applied physics, including numerical simulations, experimental investigations, and realization of prototypes of devices for industrial, domestic and health uses

Submitted by C16: Plasma Physics

ISC News

New officers of ISC elected at the 2021 GA.

The International Science Council (ISC) held its General Assembly virtually on 11-15 October, 2021. Over 300 delegates representing the ISC membership connected from all over the world to reflect on the Council's activities and achievements during its first term, and to discuss the projects and priorities for the following three years.

On October 14th, the General Assembly elected four Officers and ten Ordinary Members of the 2021 – 2024 ISC Governing Board to join the incoming President, Peter Gluckman, who took up his presidency at the conclusion of the GA. The Japanese mathematician, Motoko Kotani, was elected President-Elect. Anne Husebekk was elected as Vice-President for Freedom and Responsibility in Science, Salim Abdool Karim as Vice-President for Outreach and Engagement, and Sawako Shirahase as Vice-President for Finance of the Council. The ten elected Ordinary Members of the Board were: Karina Batthyány; Françoise Baylis; Geoffrey Boulton; Melody Burkins; Pamela Matson; Helena Nader; Walter Oyawa; Maria Paradiso; Martin Visbeck and Mei-Hung Chiu, who was member of the Executive Council of the inter-union Gender Gap in Science Project representing IUPAC. The Chief Executive Officer, Heide Hackmann, is an ex-officio Member of the Governing Board.

Sekazi Mtingwa receives the ISC Policy-for-Science Award



Sekazi Mtingwa, former Chair of the IUPAP Commission on Physics for Development (C13) and co-founder of LAAMP was awarded the prestigious inaugural International Science Council's Policy-for-Science Award 2021 in recognition of his more than 30 years involvement in enhancing STEM opportunities around the world, especially in Africa. In the words of ISC: "Prof. Mtingwa initiated and sustained several important centers, societies, institutes, initiatives, networks, and pan-African programs, beyond his own discipline – particularly, the African Laser Centre, the African Physical Society, the African Institute for Mathematical Science in Ghana, the African Light Source Initiative, the Mwalimu Julius K. Nyerere University of Agriculture and Technology in Tanzania. He made significant contributions to science systems in developing countries and contributed to the strengthening of diversity in physics in the USA."

The award was presented during the ISC General Assembly on Wednesday, 13 October 2021. Sekazi Mtingwa received the original piece of art, 'Exquisite Beauty', created by scientific photographer Karl Gaff who specializes in microscopy art.

2022-2023: A year of celebrations

2022 marks the 100th anniversary of the IUPAP and we are going to celebrate it! A Centennial Symposium will be held on 11-13 July, 2022 in Trieste, as described in a separate note. A photo contest will be run to highlight the beauty of physics and the fun that can be encountered in its practice. Details on the contest and on the awards, which will be given during the Centennial Symposium, will be posted soon on the IUPAP's website. Several satellite events are being organized at regional and national level as well. We have received proposals to hold two of them in Asia, one in Africa and we expect to receive one to take place in Latin America. Ideas for regional and national activities can be found on the IUPAP's website.

A book on the history of the IUPAP will be published as part of the celebrations. To this end, the project entitled One Hundred Years of IUPAP: A History is being carried out under the direction of the PI, Roberto Lalli, with the full support of our Union. Hopefully, the book will be presented at the two-day academic workshop on the history of IUPAP that is expected to take place in 2023. Members of the

newly created Affiliated Commission on the History and Philosophy of Physics (AC6) will be directly involved in these activities.

The celebrations for the centennial will be combined with those of the International Year of Basic Sciences for Sustainable Development which will be launched with a special event at UNESCO headquarters in Paris on July 1st, 2022.

We will close the celebrations in 2023, the year that marks the 100th anniversary of the first IUPAP General Assembly. Hopefully, we will have the closing ceremony of IYBSSD and of the IUPAP's Centennial at the Science Gateway of the European Organization for Nuclear Research (CERN), a new scientific education and outreach center that is expected to be finished in 2023. We are also planning to hold the GA in 2023 in hybrid mode, with the in-person part at CERN in Geneva, Switzerland. Please visit the page with the resolutions approved at the 2021 GA for more details on the

IUPAP Centennial Symposium @ICTP, Trieste, on 11-13 July 2022

The Centennial Symposium will take place at ICTP, Trieste, on 11-13 July 2022. We hope that many people will be able to participate in person, but we understand that some participants will be on Zoom and so the meeting will be fully hybrid. The Symposium will include plenary talks by keynote speakers and other activities, with an emphasis on aspects of the IUPAP history, on developing countries, collaborations among countries, physics education, and many other items consistent with the IUPAP mission.

The IUPAP's Executive Council and Commission Chairs Meeting will also take place in Trieste the week before the Centennial Symposium. A General Assembly, without elections, will be held afterwards, in virtual form, on July 14th 2022.

Keep the dates and stay tuned for new announcements on the very exciting activities that will surround the IUPAP's centenary!