



International Union of Pure and Applied Physics

# Newsletter

JUNE 2021

President: **Michel Spiro** • Editor-in-Chief: **Kok Khoo Phua** •  
Editors: **L.C.Kwek; Judy Yeo, Lionel Seow**

## PRESIDENTS' NOTE

### Dear readers of the IUPAP Newsletter

First of all, we have to apologize for the delays in getting out the first two newsletters of 2021. We are working on the transition out of Singapore, setting up the IUPAP's new structure described in our previous newsletter. In particular, the Executive Council selected the offer presented by the Trieste International Foundation for the Progress and Freedom of Sciences, FIT, to host the Union's Administrative office. We have just started our joint work looking forward to a fruitful collaboration. We are also putting a lot of effort in the organization of the forthcoming General Assembly which will finally be held virtually. The transition out of Singapore also implied the re-localization of the Union's website. As discussed in the C&CC meeting held virtually in October 2020, we decided to remodel it completely. The new website is currently live at [iupap.org](http://iupap.org). We invite everybody to visit it. The re-localization of the website also involved moving the nomination site for the General Assembly, something that required a lot of work on our end to have it running flawlessly. Two other projects in which we are continuously working are the International Year of Basic Sciences for Sustainable Development and the celebrations for the IUPAP's centennial. Finally, we want to mention that the 7th International Conference on Women in Physics that will be held virtually in July 2021 will have a plenary session on Thursday July 15th on the IUPAP and how it promotes women in physics. The IUPAP's President, Past President and Acting President Elect will participate in this session where the key role of IUPAP in advancing the agenda of women in physics and in science will be highlighted. We give in what follows more details on many of these issues.

### IUPAP's Administrative office moving to Trieste

The International Union of Pure and Applied Physics (IUPAP) has had its administrative and financial offices at the Nanyang Technological University (NTU) in Singapore for six years starting in 2015. To identify a new host for the IUPAP Central administrative office, an open invitation was sent to the community at large by the end of 2020. Many generous offers were received from across the world, demonstrating the global commitment to IUPAP to which the Union is most grateful. After a careful examination, the offer from the Trieste International Foundation for the Progress and Freedom of Sciences (FIT) was selected by the Executive Council. The Abdus Salam International

Centre for Theoretical Physics (ICTP) and the International School for Advanced Studies (SISSA) were directly involved in the proposal submitted by FIT. We are in the process of finalizing the Memorandum of Understanding that will rule our interaction through the end of 2023. The FIT IUPAP administrative office will be closely connected to the new IUPAP association, subject to approval by the General Assembly, to be established under the Swiss Civil Code with seat located in the Canton of Geneva. We are looking forward to benefit from the competency of the Foundation and further strengthen our links with the international physics community based in Trieste or strongly connected with its scientific institutions.

### 30th General Assembly

The 30th General Assembly of the International Union of Pure and Applied Physics, having been postponed with your consent from October 2020 to October 2021, will commence on 20th October 2021 at 1000 UTC and continue until 22nd October 2021 at 1300 UTC.

Because of the travel restrictions imposed by the pandemic, the meeting will be hosted in Geneva, and members will join via the internet. The platform, or platforms, will be advised at a later time.

This is a very important meeting for IUPAP, and we expect all members to attend. As well as its usual business, the 30th GA will be asked to adopt a new set of Articles and Internal Regulations (formerly referred to as Statutes and By Laws). We also expect that the new strategic and action plan will be adopted. These very important decisions will shape the actions of our Union into its second century of existence.

### The new website of the IUPAP is live at [iupap.org](http://iupap.org).

After having selected the company that would do the redesign of the website, we started to work jointly by the end of 2020 to define its basic structure and content. This involved a lot of work and although we went live by the end of May 2021, there are still some aspects that need further tuning. During the time course of the re-modeling we might have been slightly late posting news on awards or calls for awards issued by the Commissions. We apologize for that. We are indebted for the uninterested support of Hari Haran from the Tata Institute of Fundamental Research in India for his continuous collaboration both to advance

with the website remodeling and with the updates required by Commission Chairs and the Executive Council. As you may see, the new website has subpages on themes such as inclusion and diversity, physics for development and physics education that the IUPAP considers key as it enters its second centenary of existence. A page fully dedicated to the IUPAP's centennial is also included. We are planning to add the possibility of subscribing to the newsletters, so that people not directly related to the IUPAP through its liaison committees, commissions, working groups or other structures can receive them and stay in touch with both physics and IUPAP's news.

We are planning a transformation of the newsletter and of all our communications, particularly through social networks, to attract a large and diverse pool of people interested in physics and related subjects. To this end, we will work together with the Administrative Office in Trieste. We will need the involvement of the various members of the IUPAP's structure for the generation of content of interest.

### News about the International Year of Basic Sciences for Sustainable Development and the IUPAP's centennial celebrations

2022 and 2023 will mark the celebration of IUPAP Centenary. This will be an opportunity to celebrate the missions of IUPAP, its achievements and the ways to move forward. Inclusiveness, and especially Women in Physics (past, present and future) will be a focus in the events we will organize, in connection, we hope, with the International Year of Basic Sciences for Sustainable Development (IYBSSD). We are pleased to announce that we received recently the very positive message from the Honduras Government, that Honduras will bring the resolution for the proclamation of IYBSSD in 2022 at the next 76th UN General Assembly. This should allow us to plan now an Opening ceremony in Summer 2022 in Paris at UNESCO and a closing ceremony at CERN about one year later and to plan events in between. In addition, there should be at least 5 continental big events oriented towards Basic Sciences and the Sustainable Goals and many initiatives spread all over the world. Hopefully, some of these events will be held at a time when we can meet in person.

### IUPAP's role on the advancement of women in physics highlighted at the 7th IUPAP International Conference on Women in Physics

The 7th IUPAP International Conference on Women in Physics, ICWIP2021, originally scheduled to be held in Melbourne, Australia, in July 2020 and postponed due to the COVID19 pandemic, will take place virtually on July 11-16, 2021. The conference will include plenary talks by invited speakers, break-out sessions on "Physics Education", "Women in Physics in Developing Countries", "Intersectionality and barriers to equality" and "Becoming a Leader in Entrepreneurship" and a hands-on workshop on Data Professionalism. The conference will start with a welcoming message by IUPAP's President, Michel Spiro. Among the activities, a plenary session entitled "IUPAP: What is it? How does it promote women in Physics?" will be held on July 15th with Michel Spiro, Bruce McKellar and

Silvina Ponce Dawson as invited speakers. This session will give the opportunity to portray the many actions that the IUPAP has taken over more than 20 years to increase the participation and improve the situation of women physicists. It will allow us to show the enormous impact that the IUPAP's Working Group on Women in Physics (WG5) has been exerting on physics communities all over the world since its creation in 1999, on many occasions in ways that were unforeseen back then. As described in the Newsletter of September 2018, the deep involvement of the then IUPAP's President, Burt Richter, was key for the establishment of WG5 and its subsequent evolution. Initially thought of as a finite-term structure, its existence has continuously been renewed at the General Assemblies ever since. The commitment of the IUPAP's with the agenda of women in physics was further strengthened with the creation of the position of Vice President at Large with Gender Champion duties and through the many rules that it has established for its sponsored conferences and for the composition of its Council and Commissions. The IUPAP is also very proud of its participation in the interdisciplinary project entitled "A Global Approach to the Gender Gap in Mathematical, Computing, and Natural Sciences: How to Measure It, How to Reduce It?" and in the Standing Committee for Gender Equality in Science (SCGES) that grew out of it with which we expect to learn across disciplines and expand the impact of our actions.

### Final words

We started our March President's Note welcoming a year that we thought could bring relief and hope. The awesome contributions of science that led to the rapid design of vaccines which proved to be very effectful add to this hope. Inequalities across the world, however, have increased during the pandemic, which is reflected, among other things, in the unequal worldwide distribution of vaccines and in the great toll that the disease is still taking in terms of lives in developing countries. The appearance of new strains of increasing infectiousness is an indication that what stays ahead is a "new normality". The contributions of science will be key to face this new era. We look forward to taking part in this joint effort with the physics communities across the world.

**Michel Spiro**  
President of IUPAP  
*Chair, Steering Committee for the proclamation of IYBSSD 2022*

**Bruce McKellar**  
Past President

**Silvina Ponce Dawson**  
Acting President Designate

## Aim for the Sky, But Keep Your Feet on the Ground

**Nithaya Chetty**

Vice-President of the International Union of Pure and Applied Physics (IUPAP), with responsibility for membership matters  
University of the Witwatersrand, Johannesburg, South Africa  
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### To fight poverty and promote equality, developing countries should pursue the highest levels of unfettered, open-ended scientific inquiry.

Ideas around the development of African countries have progressed significantly since the 1960s. In the initial stages of postcolonial Africa, development support was often handed out to dictators who channeled those resources into their own bank accounts. Today, more democratic governments have shifted their priorities to strengthening education, advancing scientific research, fostering innovation, and developing talent.

Yet the advancement of African societies is painfully slow. Science and technology can be powerful catalysts for change, but the dearth of qualified scientists and the low levels of research funding pose formidable barriers to overcome. To lower those barriers, African governments should support fundamental research without compromising on its standards. In doing so, they will build an environment that will strengthen economic development and mitigate the mass migration of people to foreign shores.

An all-too-common view—held by international institutions and by government agencies in Africa and elsewhere—is that for the foreseeable future, African countries should focus their efforts on education, rather than on research, by improving the mathematical literacy and other practical scientific skills of high-schoolers and undergraduates. The argument is that if we get the fundamentals right, we will eventually produce a critical mass of quality graduates who will go on to make important contributions to society. And when it comes to driving innovation, governments in the developing world, with their limited resources, are expected to invest mostly in applied research, with the scientific agenda set primarily by the quest to find solutions to the practical problems facing their populations.

It is obviously important that African countries prioritize education and support applied research. However, I argue that it would be a grave mistake to do that in the absence of an excellent fundamental research agenda. Unless African countries aim for the highest levels of scientific research excellence within a milieu of unfettered inquiry, the continent will continue to languish on the treadmill of poverty and inequality. By striving for open-ended, curiosity-driven research, we will be better placed to harness the benefits of education and to stimulate innovation. While being attentive to our problems on the ground, we must aim for the sky.

Astronomy in South Africa offers an enlightening example. The construction of the MeerKAT radio telescope—named after a beloved mammal from the Karoo—cost the South African government more than 5 billion South African rand

(\$334 million). A precursor to an even more ambitious project—the Square Kilometre Array—MeerKAT is the most sensitive telescope in a radio-frequency range that is important for cosmology and astronomy. Radio astronomy may appear to be far from everyday life—how does the study of distant planets, stars, and galaxies put a roof over one's head or a plate of food on the table? But we must keep in mind that an important part of research is to attract new generations into science.

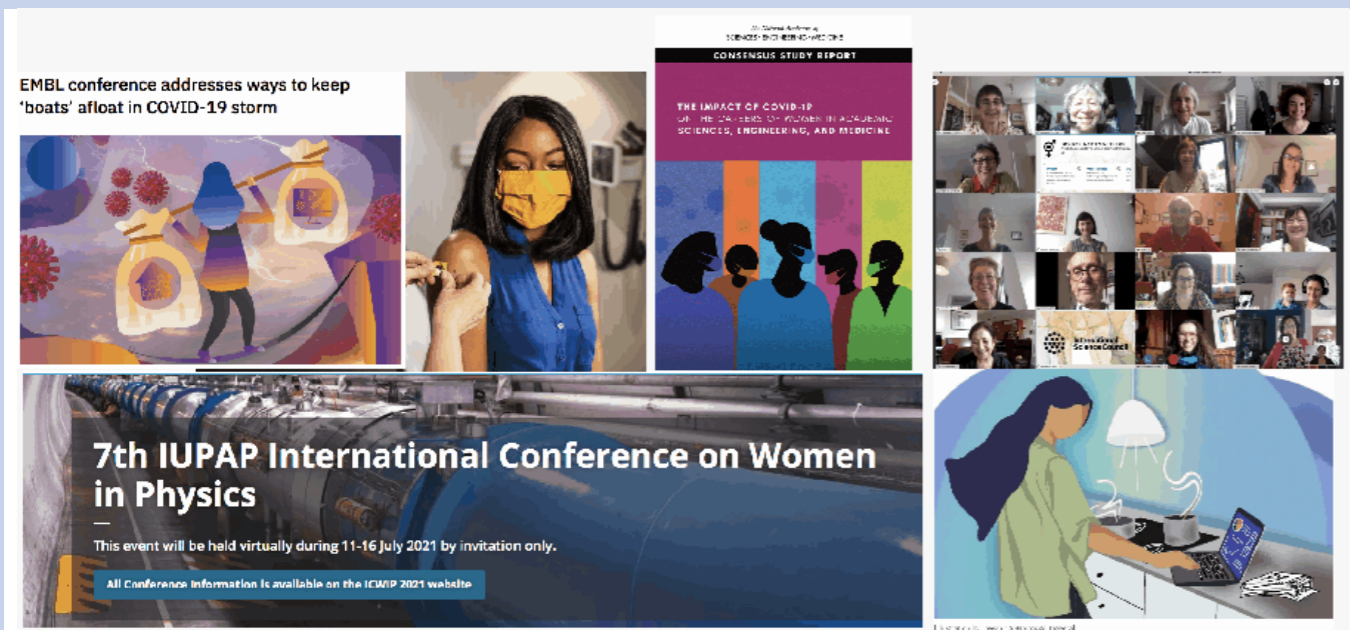
In my view, astronomy is arguably the discipline that can best achieve this goal across cultures, geographical regions, and generations. Crucially, this field can create hope, whose importance in Africa can't be underestimated. MeerKAT has energized science teachers, engaged the public, and educated hundreds of graduate students who have found employment either at home or in another African country. What is more, astronomy has exposed our best students to new cutting-edge problems in computing, communication, data science, mechanics, electronics, and optics, which all are applicable to other fields.

The response of researchers to the pandemic is one compelling demonstration of the tangible benefits of fundamental research for the real world. When COVID-19 hit South Africa, particle physicists at the University of the Witwatersrand (Wits) applied artificial intelligence and machine-learning methods to monitor and predict the evolution of the pandemic, providing valuable input to government policies that helped make life-saving decisions. Building on their successes in South Africa, those researchers are now helping other African countries. So what can developing countries learn from this success? How can they tap the applied potential of fundamental research without diluting the rigor of academic degrees and without turning universities into technology centers that merely support industry? A promising approach is to expose students to the ideas of innovation during the course of their graduate degrees rather than after them. At Wits, we are piloting a dual degree program where selected doctoral students from different disciplines simultaneously complete an M.Sc. in innovation. While pursuing their Ph.D.'s, the students learn about entrepreneurship and work with mentors who transitioned ideas from fundamental inquiry to commercial success.

We are confident the program will demonstrate that fundamental inquiry and innovation aren't mutually exclusive. If we educate bright, inspired students, it won't matter whether they turn their attention to string theory or commercial devices—they will simply change our societies for the better.

## COVID-19, Research and Gender

Gillian Butcher, Silvina Ponce Dawson, Igle Gledhill



Picture created with images related to women in science activities in pandemic times (from top left to bottom right: EMBL conference with illustration by Rayne Zaayman-Gallant/EMBL; photo in the public domain of the US CDC, photo credit: Lauren Bishop; cover of the report by the US National Academies of Science, Engineering and Medicine; Image taken during a Zoom meeting of the Gender Gap in Science Project, 2020; banner of the 7<sup>th</sup> ICWIP original website; illustration by Jawahir Al-Naimi/Al Jazeera)

COVID-19 has impacted on many people's lives in a myriad of ways and to varying degrees. Medical researchers have sought to control the spread, alleviate symptoms and find vaccines. Researchers from a wide variety of disciplines have also been investigating the effects of COVID-19 on society in many of its facets: the reports make depressing reading for the progress of equalities.

The journal Nature has carried a number of research articles and communications on the pandemic and its effects on society. A poll of post-doctoral scientists revealed the concerns of that cohort in insufficient funding and reduction in employment opportunities. In one editorial [1], they highlighted the growing evidence that the fallout from the pandemic is worsening existing disparities, including between genders and more specifically for women with children.

There have been studies looking at the effect of the pandemic on authorship of papers, by gender, such as the paper in the British Medical Journal (BMJ) on medical research papers related to COVID-19 itself [2]. The publishers Elsevier also conducted a review of submitted manuscripts and peer review activities for all their journals between Feb and May 2018-2020 [3]. Their results showed that women submitted proportionally fewer manuscripts than men during the lockdown months and that women at more advanced stages of their career were especially affected.

A substantial review and report from the US National

Academies of Sciences, Engineering and Medicine covered the effects of COVID-19 on women in STEM for a number of different aspects: academic productivity, work-life boundaries and gendered divisions of labour, collaboration, networks, leadership and mental health [4]. The report details the growing disparities by gender but also highlights the increased inequities arising from intersectionality and other areas where inequality already exists.

However, there are some positives that come out of the new ways of working enforced by lockdown, as the US National Academies of Sciences report acknowledges. A survey of people working in Higher Education (HE) in the UK [5] reported that women were more likely than men to say that remote working had allowed them to attend more conferences and take on more career development activities. On the other hand, it found that men were more likely to report that it had helped them engage with their research and teaching. Even the positives are gendered.

Other positives have been seen with changes in traditional roles. An example surfaces in descriptions of physics in the time of COVID-19 [6]: many Kenyan families were reunited in unexpected ways, and fathers have taken turns to cook meals, which is unheard of in the traditional African context.

The association European Women in Mathematics (EWM) published an open letter [7] highlighting the impact on junior and women mathematicians. They make it clear: "Untenured faculty lost more. Women

lost more. Caregivers lost more. The more vulnerable the population, the greater the disadvantage. No one chooses a pandemic, but now we can choose how to respond."

The Standing Committee for Gender Equality in Science (SCGES), of which IUPAP is a founder member, has put a statement on its website [8] on standing for gender equality in times of COVID-19 with some recommendations. In line with the SCGES recommendations, IUPAP has encouraged its sponsored conferences to adjust their fees for participants who have lost income due to pandemic-related job changes or caregiver responsibilities.

Research is telling us much about the gendered impacts of COVID-19 and no doubt will continue to do so, but it is also pointing us to solutions. More research is needed, yes. But also more actions.

### References

- Lerchenmüller C, Schmallenbach L, Jena AB, et al Longitudinal analyses of gender differences in first authorship publications related to COVID-19, *BMJ Open* 2021; 11:e045176. doi: 10.1136/bmjopen-2020-045176
- No Tickets for Women in the COVID-19 Race? A Study on Manuscript Submissions and Reviews in 2347 Elsevier Journals during the Pandemic. / Squazzinioni, Flaminio; Bravo, Giangiacomo; Grimaldo, Francisco; Garcia-Costa, Daniel; Mehmani, Bahar.

- In: SSRN, 2020. "COVID is amplifying the inadequacy of research-evaluation processes" *Editorial Nature* 591, 7 (2021) doi: <https://doi.org/10.1038/d41586-021-00527-9>
- National Academies of Sciences, Engineering, and Medicine 2021. *The Impact of COVID-19 on the Careers of Women in Academic Sciences, Engineering, and Medicine*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26061>.
- Gender differences in UK HE staff experiences of remote working New survey explores gender differences in UK HE staff experiences of remote working | *Advance HE* ([advance-he.ac.uk](http://advance-he.ac.uk)) [accessed 30.06.21]
- G. Amolo, Letter from Kenya, *African Physics Newsletter* June 2020, American Physical Society, [accessed 1.07.21]
- Corona Crisis: Impact on junior and women mathematicians – *European Women in Mathematics* ([europeanwomeninmaths.org](http://europeanwomeninmaths.org)) [accessed 30.06.21]
- Standing for Gender Equality in Science in times of COVID-19 – SCGES ([gender-equality-in-science.org](http://gender-equality-in-science.org)) [accessed 30.06.21]

## IYBSSD presented at the 2021 Open Science Forum for Latin America and the Caribbean

Silvina Ponce Dawson



A new edition of the Open Science Forum for Latin America and the Caribbean, CILAC Forum, was held virtually on April 26-28, 2021. Considered as the regional hub for science, technology and innovation and a platform to discuss effective policies towards the Sustainable Development Goals of the UN 2030 Agenda, this year's core themes focused on the role of science as an inclusion vector. More than 7000 people from all over the world attended the forum which had about 100 conferences and over 150 speakers. The International Year of Basic Sciences for Sustainable Development (IYBSSD) was represented in two ways: with a panel session included in the main program and through a virtual stand containing a video and useful material that could be visited at any time. The two activities addressed four main topics on which

the scientific community of the region could collaborate during IYBSSD: projects of co-creation of knowledge; popularization of science and activities for kids and students; gender inclusion and diversity in the practice of science and social networks to challenge stereotypes on science and its practitioners. Valeria Hernandez of Argentina, Alba Avila of Colombia and Jose Franco of Mexico participated of the panel session describing their experiences on these matters with the coordination of Silvina Ponce Dawson. The celebration of IYBSSD was presented as an opportunity to articulate efforts that could result in a more inclusive science and in permanent dialogue with the societies of the region.



Illustration by Mony de Coss & Eduardo Macias with figures from storyset.com

### Trieste, new site of the IUPAP's secretariat for administrative affairs



18th IUPAP General Assembly at ICTP, Trieste, October 1984 (ICTP Photo Archives).

The IUPAP administrative offices will be hosted by the Trieste International Foundation (FIT). FIT was established in 1988 by Nobel Laureate Abdus Salam, at the time Director of the ICTP, to promote and support the development, freedom and dissemination of science, and its peaceful applications. FIT lists among its current members all the Trieste-based scientific institutions. Its headquarters, and consequently those of IUPAP, are located in a recently renovated area of the old port of

the city, in a building that used to be the port's electrical power station.

FIT's President Stefano Fantoni, nuclear physicist and former Director of SISSA, and Sandro Scandolo (ICTP) will assume the duties of IUPAP Secretary General and Deputy Secretary General for Administrative Affairs, respectively.



The FIT headquarters, in Trieste's old port, where the IUPAP administrative offices will be hosted.

"IUPAP's aims are perfectly in line with the goals of FIT", says IUPAP President Michel Spiro, adding that "FIT will play the role of a conductor in achieving those goals for IUPAP. To run IUPAP, it will rely on a worldwide distribution

of focused activity centers helping for that goals: Website in India, Newsletter in Singapore, Activity Report in Latin America, Follow-up of Sponsored Conferences in South Africa, Legal affairs and Bank account in Geneva."



Stefano Fantoni, theoretical nuclear physicist and President of FIT, has assumed the duties of IUPAP Secretary General for Administrative Affairs. Fantoni has been the Director of SISSA from 2004 to 2010 as well as the founder and first director of Italy's National Agency for the evaluation of universities and research. He received the UNESCO Kalinga Prize in 2001 and the Eugene Feenberg Memorial Medal in 2007.



Sandro Scandolo, physicist with research interests in computational materials science and high pressure physics and current Head of Research at ICTP, has assumed the duties of IUPAP Deputy Secretary General for Administrative Affairs.

## The International Astronomical Union (IAU)

The IAU, the international organisation of professional astronomers, was founded 102 years ago at a very difficult time, just after the end of the World War I, which almost led to the collapse of international cooperation. It had seven founding nations and the main objective was to promote international scientific cooperation in the field of astronomy.

The 1st General Assembly (GA) of IAU was held in Rome in 1922, and had eighty-three participants!

GA is organised every three years and is the main event for the global community of astronomers.

The IAU has changed profoundly over time! It currently has 82 national members (<https://www.iau.org/administration/membership/national/>), and more than 12 200 Individual and Junior members from 90 countries (<https://www.iau.org/administration/membership/member/>). And the last GA, in Vienna, in August 2018, had more than 3,000 participants, from 89 countries around the world.

The IAU's long-term policy is defined by the General Assembly and implemented by the Executive Committee, while day-to-day operations are directed by the IAU Officers. The focal point of its activities is the IAU Secretariat, based at the Institut d'Astrophysique de Paris, France, where IAU is registered. The scientific activities of the IAU are organised by its 9 Scientific Divisions and, through them, its 35 specialised Commissions covering the entire spectrum of astronomy, together with its 53 Working Groups ([https://www.iau.org/science/scientific\\_bodies/](https://www.iau.org/science/scientific_bodies/)).

Over the years the IAU has grown in size but also in ambition.

The IAU's 2020-2030 Strategic Plan ([https://www.iau.org/administration/about/strategic\\_plan/](https://www.iau.org/administration/about/strategic_plan/)) presents a comprehensive overview of the Union, clearly defines its mission, but also lists the main goals for the decade. In particular:

- Promote the inclusive advancement of the field of astronomy in all countries,
- Promote the use of astronomy as a tool for development in every country,
- Engage with the public by facilitating access to astronomical information and sharing the science of astronomy,
- Stimulate the use of astronomy in teaching and school education.
- To fulfil this ambitious mission, the IAU not only organises scientific meetings - 9 symposia per year<sup>1</sup>, 3 regional meetings per triennium in years between GAs (Asia-Pacific Regional IAU Meeting, Latin American Regional IAU Meeting, Middle-East and Africa Regional IAU Meeting) - but also awards several prizes - the

<sup>1</sup> In the year of a GA, there will be 6 symposia plus 12 focus meetings included in the GA programme, and 3 symposia outside the GA

annual PhD prize for the 10 best doctoral theses of the year (1 per Division and 1 at large), or the Gruber Fellowships, sponsored by the Gruber Foundation, for the best 2 or 3 research programmes proposed by young researchers ([https://www.iau.org/science/grants\\_prizes/iau\\_grants/](https://www.iau.org/science/grants_prizes/iau_grants/)).

To achieve the other goals, the IAU created 4 dedicated offices in partnership with institutions from various countries, through international competition. These offices are fully operational and carry out remarkable and very successful programmes:

- The Office for Young Astronomers (OYA) ([https://www.iau.org/training/office\\_for\\_young\\_astronomers/](https://www.iau.org/training/office_for_young_astronomers/)), a partnership with the Norwegian Academy for Sciences and Letters, has been dedicated to organising the International Schools for Young Astronomers (ISYA) ([https://www.iau.org/education/school\\_for\\_young\\_astronomers/](https://www.iau.org/education/school_for_young_astronomers/)) since 1967, that is, for over 54 years.
- The Office of Astronomy for Development (OAD) (<https://www.iau.org/public/oao/>), based in Cape Town, in partnership with the National Research Foundation of South Africa, since 2010.

The Office of Astronomy Outreach (OAO) (<https://www.iau.org/public/oao/>), a joint project with the National Astronomical Observatory of Japan, established in Tokyo in 2012.

The Office of Astronomy for Education (OAE) (<https://www.haus-der-astronomie.de/OAE/>), a joint project with the Max Planck Institute for Astronomy in Heidelberg, created in 2020.

These IAU offices have very specific missions, coordinate many different projects and large networks around the world, and interact with each other frequently.

The IAU is deeply committed to these offices and supports them using a considerable part of its resources - around 40% of its annual budget, compared to about 20% that invests in science.

As General Secretary, I must confess that this modern concept of the IAU, addressing not only science but also science as an instrument in the service of a much broader community, is very stimulating and rewarding. And I feel proud to serve the IAU.

IAU has partnered with IUPAP on several projects, namely related to gender balance in science, a concern and objective shared by both unions. In particular, "A Global Approach to the Gender Gap in Mathematical, Computing, and Natural Sciences: How to Measure It, How to Reduce It?", an interdisciplinary project involving 11 international partners, which has led to the establishment of a network of multidisciplinary scientists who share an interest of improving inclusion and diversity in their

fields - the Standing Committee for Gender Equality in Science (SCGES), which IAU integrates. In the future it is to be expected that the IAU and IUPAP will expand and strengthen their collaboration.

## Young Scientist Award

### 2021 Commission C4 on Astroparticle Physics

**Carlos Alberto Argüelles Delgado (Harvard U.)**

For his contributions to neutrino physics using IceCube data materials

### 2021 Commission C4 on Astroparticle Physics

**Francesca Calore**

For her contributions to dark matter phenomenology

### 2021 Commission C15 on Atomic, Molecular, and Optical Physics

**Carlos Hernández García**

For his outstanding contributions to the theory and modeling of laser-driven high harmonic generation (HHG), combining quantum simulations with laser Physics

### 2021 Commission AC2: INTERNATIONAL COMMISSION ON GENERAL RELATIVITY AND GRAVITATION

**Christopher Berry**

For key contributions to gravitational-wave discoveries, mentoring and leadership to support the research community, and effective public outreach.

## UPCOMING SPONSORED COMMISSION CONFERENCES

### C2: Commission on Symbols, Units, Nomenclature, Atomic Masses & Fundamental Constants

- International Conference on Precision Physics and Fundamental Physical Constants (FFK – 2021)  
**24 – 28 May 2021, Stara Lesna, Slovakia**
- The International Conference on Precision Physics of Simple Atomic Systems (PSAS 2020)  
**10 – 15 May 2021, Wuhan, China**

### C3: Commission on Statistical Physics

- The 6th International Soft Matter Conference, ISMC2021  
**12 – 17 December 2021, Osaka, Japan**

### C4: Commission on Astroparticle Physics

- TeV Particle Astrophysics 2021  
**15 – 19 March 2021, Chengdu, China**
- 9th Very Large Volume neutrino Telescopes (VLVnT)  
**20 – 25 April 2021, Valencia, Spain**
- 16th Patras Workshop on Axions, WIMPs and WISPs  
**14 – 18 June 2021, Trieste, Italy**
- 37th International Cosmic Ray Conference (ICRC – 2021)  
**15 – 22 July 2021, Berlin, Germany**

- 17th International Conference on Topics in Astroparticle and Underground Physics (TAUP – 2021)  
**30 August – 03 September 2021, Valencia, Spain**

#### **C5: Commission on Low Temperature Physics**

- International Symposium on Quantum Fluids and Solids (QFS – 2021)  
**9 – 14 August 2021, Hokkaido, Japan**

#### **C8: Commission on Semiconductors**

- International Conference on the Defects of Semiconductors 2020 (ICPS 2021)  
**26 – 30 July 2021, Oslo, Norway**

#### **C9: Commission on Magnetism**

- International Conference on Trends in Magnetism (ICTM 2021)  
**6 – 10 September 2021, Cefalù, Italy**

#### **C10: Commission on Structure and Dynamics of Condensed Matter**

- 12th International Conference on Magnetic and Superconducting Materials (ICMSM – 2021)  
**1 – 5 August 2021, Duisburg-Essen, Germany**
- Joint 28th AIRAPT and 59th International Conference on High Pressure Science and Technology (AIRAPT & EHPRG – 2021)  
**25 – 30 July 2021, Edinburg, UK**

#### **C11: Commission on Particles and Fields**

- International Conference on Computing in High Energy and Nuclear Physics (ICCHENP – 2021)  
**17 – 23 May 2021, Norfolk, USA**
- 28th International Workshop on Weak Interactions and Neutrinos (IWWIN – 2021)  
**06 – 12 July 2021, Minneapolis, USA**
- 30th International Symposium on Lepton Photon Interactions at High Energies (ISLPIHE – 2021)  
**09 – 14 August 2021, Manchester, UK**

#### **C12: Commission on Nuclear Physics**

- 14th International Conference on Nucleus-Nucleus Collisions (NN21)  
**18 – 23 July 2021, Whistler, Canada**

#### **C13: Commission on Physics for Development**

- African Physical Society International Conference (AfPS – 2021)  
**15 – 20 November 2021, Kigali, Rwanda**

#### **C15: Commission on Atomic, Molecular, and Optical Physics**

- 32nd International Conference on Photonic Electronic and Atomic Collisions (ICPEAC – 2021)  
**20 – 27 July 2021, Ottawa, Canada**

#### **C16: Commission on Plasma Physics**

- International Conference on Phenomena in Ionized Gases (ICPIG -2021)  
**11 – 16 July 2021, Egmond aan Zee, Netherlands** (Postponed to 04 – 09 July 2023)

#### **C19: Commission on Astrophysics**

- 31st TEXAS Symposium on Relativistic Astrophysics (TEXAS – 2021)  
**13 – 17 December 2021, Prague, Czech Republic**

#### **AC.2: International Society on General Relativity and Gravitation (ISGRG)**

- 14th Edoardo Amaldi Conference on Gravitational Waves (Edoardo Amaldi – 2021)  
**18 – 23 July 2021, Melbourne, Australia**

#### **AC.1: International Commission on Optics**

- The 25th Congress of the International Commission for Optics (ICO-25) & the 16th Conference of International Society on Optics Within Life Sciences (OWLS-16)  
**13 – 17 September 2021, Dresden, Germany**

#### **AC3: International Commission for Acoustics, ICA**

- International Congress on Acoustics (ICA – 2021)  
**6 – 10 December 2021, Sydney, Australia**