



International Union of Pure and Applied Physics

Newsletter

FEBRUARY
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

This is the first President's Note of 2021, a year that we expect will bring relief and hope. It is a year full of changes, not only because of the new ways in which many of IUPAP's activities had to be carried out due to the pandemic, some of which will persist, but also because we have to make very important decisions on the IUPAP's organization that will have long-term impact. 2021 is also the preamble of two years full of celebrations: the centenary of the establishment of IUPAP in 2022 and of its first General Assembly in 2023; the International Year of Basic Sciences for Sustainable Development (IYBSSD) which will hopefully be soon declared by the United Nations General Assembly for 2022-2023. We have a lot of work ahead. We invite all members of IUPAP and of the worldwide physics community to take part in this joint effort, to help us rejuvenate the Union and to contribute to make the IUPAP's Centenary and IYBSSD two memorable celebrations. We describe in what follows some of the steps and activities foreseen for this coming year.

30th General Assembly

As you all know, the 30th General Assembly originally scheduled for 2020 had to be postponed to 2021 due to the Covid pandemic. Although the beginning of the vaccination campaign in various countries is auspicious, the lack of the widespread availability of vaccines, especially in the developing world, suggests that the pandemic will not come to an end in 2021. It is for this reason that we are still not certain whether the 30th General Assembly, in principle foreseen for October 20-22, 2021 in Beijing, will be held in person, remotely or will involve a mix of the two forms. We plan to make the decision in April. Nevertheless, we are getting prepared to fill it with many important items.

IUPAP Administrative Office and Financial Legal Office

IUPAP has had its administrative office at the Nanyang Technological University (NTU) in Singapore for the last six years. This arrangement came to an end in December 2020. Looking for a new institution to host the administrative office, we issued a call for applications to host the IUPAP Administrative Office for the period 2021-2023 or longer. We have received four offers that are currently under evaluation. A decision by the Executive Board will be made soon which will then be submitted to the approval by the next IUPAP General Assembly.

We are also advancing with the proposal to establish the Union as an Association under the Swiss civil code, domiciled in Geneva (as foreseen in our statutes). That has the advantage of giving IUPAP a legal personality, which nowadays is very important. This will imply changes in our statutes that we will submit to the approval by the General Assembly as well.

As an interim measure the office will continue in Singapore but not at NTU. The Deputy Secretary General, Leong Chuan Kwek, is managing the affairs of the office on a limited time voluntary basis.

For the past six years the office at NTU in Singapore also took care of the maintenance of the website and World Scientific was in charge of the newsletter. As explained separately, we have contracted a specialized company based in India to redesign and host the website. We expect that the newsletter will still be produced in Singapore. We are also planning to have a more stable presence on social networks with the help of different people.

We think that this worldwide distribution of functions and activities guarantees the global presence of IUPAP, hopefully making it more stable at the same time.

Corporate Associate Membership

The Working Group 16 on Physics and Industry is coming up with the proposal to open the possibility that companies or Large-Scale Research Infrastructures can become Corporate Associate Members (not individuals) of IUPAP with rights and duties to be defined. This proposal, which is inspired by in the IUPAC model, would certainly enrich the IUPAP membership, giving new impetus to the Union. To this end, **adjustments to our statutes will be necessary.**

New commissions and affiliated commissions

Working Group 16 may come with the proposal to become the Commission on Physics and Industry. Once this is approved, a call for member nominations will be issued which might then be open to Corporate Associate Members.

The International Association of Physics Students has asked to become an IUPAP Affiliated Commission. This will certainly rejuvenate IUPAP. Some adjustments to the statutes might be necessary to accommodate this Commission.

We have started discussions with the International Union of History and Philosophy of Science and Technology (IUHPST) to create an IUPAP Affiliated Commission on the History and Philosophy of Physics. The existence of such a Commission will be of great help for the organization of some of the activities associated to the IUPAP's centenary and to cover issues related to ethics and codes of conduct.

These three initiatives will hopefully be submitted to our next General Assembly. We expect they will be as transformative as the ones related to the organizational aspects of the Union described before.

Strategic and Action Plan

A dedicated team has produced a new draft of the IUPAP's Strategic and Action plan that has taken into account all the comments submitted last year by IUPAP's members. This draft has been sent out for comments by Executive Council members. We will then circulate it more widely. We plan to get it ratified at our next GA. The plan will provide IUPAP with a vision and a set of actions that will serve as indicators for the annual reports that will have to be produced after the IUPAP becomes a Swiss Association.

IUPAP sponsored Conferences

As enunciated on our position statement on virtual conferences and worldwide accessibility (<https://iupap.org/iupap-statement-on-virtual-conferences-and-worldwide-accessibility/>) we have noted that as a result of the perturbation induced by the Covid-19 pandemic, a number of conference organizers had to adopt online platforms to substitute conventional physical conference venues with the virtual equivalent. In some instances, organizers had opted to experiment on innovative hybrid models incorporating simultaneously both physical and online virtual conference venues. Whereas it is currently not possible to determine if this transformational impact of Covid-19 on the organization of conferences is temporary or permanent, we would nevertheless like to re-affirm the commitment of IUPAP to continue supporting gatherings and meetings of physicists on platforms that are largely accessible to the wider global scientific communities. To this effect, our Union shall (for now) continue to follow its established guidelines to select the most appropriate and deserving conferences to receive IUPAP sponsorship.

With our Singapore-NTU IUPAP administrative office currently undergoing a transition, we expect such transition to trigger no major perturbation on our well-established assessment processes for conference support, especially in light of the fact that the IUPAP conference support function continues to be co-ordinated from iThemba LABS, South Africa as has been the case before. Finally, please be reminded that the 1st of June 2021 is the due date to

submit online applications for all conferences applying for 2022 IUPAP conference sponsorship.

Centenary, next to next General Assembly and IYBSSD

As we have already mentioned, the next two years will be full of very special events. We expect to start the celebrations for the IUPAP's Centenary in mid-2022 with a virtual event and with various satellite events held in different parts of the world. July 1st, 2022 should also mark the start of the International Year of Basic Sciences for Sustainable Development, which due to the pandemic had to be slightly postponed and will hopefully run from July 2022 through June 2023. We expect to have a closing event of IYBSSD, hopefully at CERN's Science Gateway, in mid-2023 which will also serve to celebrate the 100th birthday of IUPAP's first General Assembly. The 31st General Assembly will then follow. We hope all this will give us opportunities to organize joint activities with our members and tighten our links with them.

As part of the celebrations for the Centenary we are planning to publish a book on the history of the IUPAP. To this end, the IUPAP Executive Council has launched a project aimed at reconstructing the history from a global perspective. The project called One Hundred Years of IUPAP: A History is directed by Roberto Lalli as Principal Investigator. Digitization of the relevant documents has already started. The digitized documents will be made available for historical research and will constitute the primary source of information for a scholarly process, which will be concluded by a two-day academic workshop on the history of IUPAP in [2022](#).

We have in front of us two years full of projects and events. Let's be optimistic and enjoy these.

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

Bruce McKellar
Past President

Silvina Ponce Dawson
Acting President Designate

Introduction to the International Association of Physics Students

The International Association of Physics Students (IAPS) is a non-profit non-governmental organisation run entirely for and by physics students from around the world. With a spirit of mutual understanding and equality, our goal is to achieve global collaboration among and representation of physics students. As an umbrella organisation, we support both local groups at universities and national physics student societies in promoting transnational cooperation in scientific, social and cultural dimensions.

Since the birth of the association over 30 years ago, IAPS has grown to being present in over 50 countries, including 22 national organisations in 4 continents, motivated by an interest in creating a global student community that could contribute both to the personal and professional growth of its members and to a sense of collective cooperation on shared goals of scientific development.

Throughout each year, IAPS activity takes on several forms, which takes into account the diversity of its aims and of its membership.

In a general sense, we hold major annual events like the International Conference of Physics Students (ICPS) and the theoretical physics competition PLANCKS, excursions like iaps2CERN and member-organised events like Lights of Tuscany (LOT), Physics for Physicists (P4P) or iaps4SPACE, with the support of IAPS grants for student exchanges, collaboration events between member committees, outreach activities and for projects organised in cooperation with members of other international student associations.

In a more specific dimension of contact between science and society, we count on our outreach efforts in relation to school students or the general public on IAPS School Day and International Day of Light, along with other IAPS

members' local initiatives. In addition, there is a growing sense of the importance and need for engagement in advocacy both on matters of general concern, like climate change and science funding, and on issues closer to the reality of students, like access to higher education and study conditions. As an example of this, we have recently started holding online talks, beginning with our IAPS@adistance series, which cover not only physics topics but also diversity and inclusion in the physics community.

As no student organisation is complete without a journal, IAPS runs an annual issue called jIAPS, which features physics or advocacy related articles written 'by physics students for physics students' (the IAPS motto), in addition to accounts of IAPS events and artistic depictions of Science made by students.

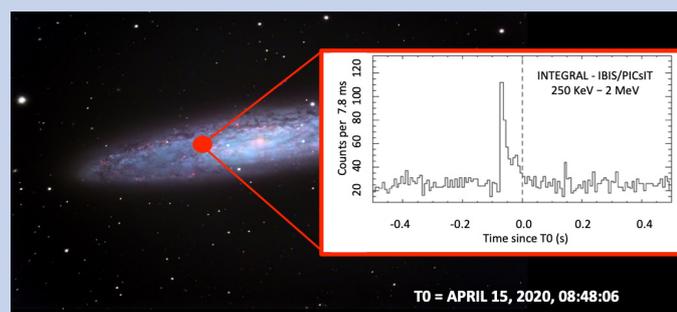
Complete as it may be within its own community, IAPS has reached a point at which it can make great contributions to the physics community at large, while also gaining from the experience of physics societies and unions in organisation building and development. This has resulted in the current joint efforts for IAPS to become an Affiliated Commission of IUPAP, in addition to working on formal or informal collaborations with other organisations, building on its historic and present-day partnership with the European Physical Society (EPS) which is fundamental to the operation of IAPS. We are also well supported by our national member committees, such as the German DPG and the UK's Institute of Physics (IOP).

So, there is much to do. As students committed to working together on the many aspects described previously, we know the best way to reach the goals of IAPS is by connecting with students of physics everywhere among themselves and the physics community, in the physics-with-no-borders spirit that led to the founding of IAPS!

NEWS FROM C19

The Short Gamma Ray Burst unveiling the secrets of magnetars

Pietro Ubertini (C19) and Giulia Mantovani



On April 15, 2020, a short and intense Gamma Ray Burst (named GRB200415A), featuring a fast rise time followed by an order of magnitude weaker tail, was detected by several instruments on board space missions close to Mars and the Earth.

This unusual burst, whose intensity reached the maximum in less than 0.5 milliseconds, has been confirmed to be produced by a magnetar not part of our Galaxy, located instead in the Sculptor galaxy at 11.5 million light years from the Earth.

The first detection was made by Mars Odyssey which is placed in the orbit of Mars. This detection triggered the NASA Wind satellite. After that, the signal reached the Earth environment, triggering the high energy INTEGRAL's instruments, the NASA Fermi gamma ray burst detectors and the Atmosphere-Space Interactions Monitor (ASIM) on board the International Space Station (ISS).

The following figure shows the light curve of the burst

detected by the gamma-ray detector, PiCsiT, aboard the INTEGRAL satellite. This burst lasted for only 140 milliseconds while the main pick was 4 millisecond long.

Magnetars are neutron stars, the final stage in the life of a star more massive than the Sun, which have extremely high magnetic fields, of the order of 10^{14} - 10^{15} times the one of the Earth. So far, astronomers have detected only a few Short Gamma-Ray Bursts (around 30) and only 3, including this one, from extragalactic sources.

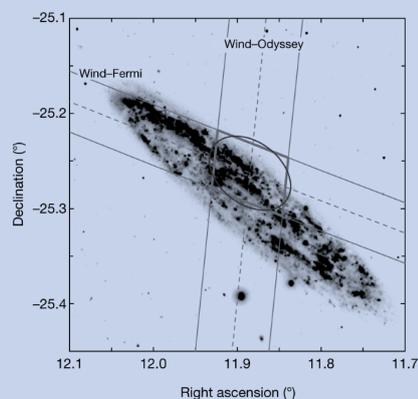
Short Gamma ray bursts are known to be associated with the merging of two neutron stars, an event that produces gravitational waves. In fact, this was the case of GW170817, the first contemporary detection of gravitational waves (GW) made by the LIGO-Virgo ground interferometers and the FERMI and INTEGRAL space observatories.

It was not possible to observe GWs associated with the event described in this brief article because the LIGO and Virgo interferometers were in the middle of their hardware upgrade phase and not operative at the time of the burst.

Thanks to the number of instruments detecting the short Gamma Ray Burst, it was possible to reconstruct the geometry of the event and locate it in the Sculptor galaxy. In the following picture, it is possible to see how the Fermi and Mars Odyssey satellites together with the Interplanetary Network were able to deduce the location of the Magnetar producing the burst. This was done taking into account the data from this network and the corresponding delay of the arrival time of the signal detected in different parts of the solar system.

See also:

Svinkin, D., D. Frederiks, K. Hurley, R. Aptekar, S. Golenetskii, A. Lysenko, A. V. Ridnaia et al. "A bright γ -ray flare interpreted as a giant magnetar flare in NGC 253." *Nature* 589, no. 7841 (2021): 211-213.



HENRI ABRAHAM AWARD FOR DISTINGUISHED LONG SERVICE TO IUPAP

Henri Abraham: Secretary General of IUPAP (1934-1943)

Henri Abraham was born as the fifth of six children on 12 July 1868 in Paris. He completed his secondary school at the Chaptal college in Paris and he was admitted into the École Normale Supérieure in 1886 at the age of eighteen and completed his studies at ENS in 1889. He underwent military service in 1890 and in the following year, he returned to ENS. At the same, he taught at the Chaptal College while preparing his doctoral thesis.

Abraham was fascinated by the success of Hertz experiment on electromagnetic radiation and he decided to verify the predictions of this theory in his doctoral thesis. His thesis was focused on "the equality of the speed of propagation of electromagnetic waves, c , with the inverse ratio of the square root of the product of the electric permittivity in free space and the magnetic permeability. He defended his thesis two years later in 1892. In 1894, Abraham was appointed Professor at the Lycée Louis-Le-Grand where for roughly six years, he honed his pedagogical skills. In 1900, he obtained a post as a Conference Convenor at ENS, an attachment that allowed him to be affiliated to ENS indefinitely. Abraham married Madeleine Boris in 1901. He had three daughters through the marriage and two of his grandsons were Math and Physics students at ENS in the seventies.

In 1912, Abraham was appointed as a Professor at ENS and he headed the Physics Laboratory until his retirement in 1937. The First World War interrupted his teaching career. For four years, he contributed to the French Intelligence service (télégraphie militaire). Abraham, in his thirty or so years of teaching, influenced many students including Léon Brillouin, Louis Néel, Alfred Kastler, Yves Rocard, André Guinier and so forth.

In research, Abraham contributed immensely to the measurement of the speed of light. In 1917, he invented the multivibrator, a new electrical oscillator that could produce a square wave pulses and generate multiple frequencies. He has also contributed to works on the cathode ray oscilloscope.

Abraham was the secretary general of the French Physical Society (Société française de physique, SFP) from 1910 to 1912, becoming its President in 1922. In 1920, he was the President of the Electrician Society (Société des électriciens); in 1930, he assumed the Presidency of the French Chronometry Society (Société française de chronométrie), and in 1934, as the President of the Radio-Electrician Society (Société des radioélectriciens). Abraham founded the latter society in 1921 together

with General Ferrié. Abraham has been active in the establishment of the International Union of Pure and Applied Physics (IUPAP) since its inception in 1922 together with William Bragg. From 1934 to 1942, he was the Secretary General of IUPAP.

Abraham was arrested by the Gestapo in June 23, 1943 and then he was taken to Marseille in December 7 before his deportation to the Auschwitz Concentration Camp in December 1943 where he was killed on arrival.

A good narratives of his achievements can be found in a wonderful monograph concerning three french physicists: Henri Abraham, Eugène Bloch and Georges Bruhat [2].

[1] Haag, J. (1945). Henri Abraham (1868-1943). Annales Francaises de Chronometrie, 15, 93-95. (In French)

[2] Cagnac, B. (2009). Les Trois Physiciens: Henri Abraham, Eugène Bloch, Georges Bruhat, fondateurs du Laboratoire de physique de l'École normale supérieure. (In French)

Henri Abraham Distinguished Long Service Award

The awardees are: Jackie Beamon-Kiene, Willem van Oers, Terrence J. Kessler and Luis Viña.

Tribute from Gillian Butcher, Igle Gledhill and Silvina Ponce Dawson



While working for the American Physical Society, Jackie was invited to serve as Administrator for the IUPAP Secretary General, Judy Franz, for the period 2000-2008. The 1999 IUPAP General Assembly had approved the creation of Working Group 5 on Women in Physics. Jackie started to serve as administrator for WG5 in 2000 and continued this work until her retirement from APS in 2018. In spite of this, she is still contributing with many of the activities of the group as described below. As the administrator Jackie dealt with the finances and keeping the WG in line with IUPAP practices. A crucial part of her role was her administration of the travel grants. In one particular year of funding, over 400 grants were distributed amongst 53 countries to women for whom attendance at the conference can make a big difference to their careers.

Jackie Beamon-Kiene

Since her retirement Jackie has continued to work with WG5, training up and assisting her successor who also comes from the APS. Her experience is still vital in obtaining sponsorship for the upcoming ICWIP (International Conference on Women in Physics), which will be held virtually in July 2021, and for her extensive knowledge of women physicists from all over the world.

Jackie has been at the heart of WG5 in more ways than one. She has helped keep each successive group functioning, living and breathing – the heartbeat. Above all, she manages to combine efficiency and practicality with sensitivity and compassion: the heart.

Tribute from Robert E. Tribble



Wim has been a leader of IUPAP's Working Group 9 (WG9) since it was established in 2006. The mandate for WG9 when it was established was to look at the key issues in Nuclear Physics from an international perspective. This remains its mandate today.

One of the early actions of WG9 was to develop a compendium of nuclear physics research facilities that were either existing or under construction in the mid 2000's. Wim was instrumental in developing the initial document, which featured nearly 200 facilities around the world, and has been essential in the many upgrades that have occurred to the report over the years. Today the document is published on the WG9 web site and includes over 100 entries of user facilities with over 200 pages of information that covers the major research questions in nuclear physics and the facilities that exist around the world to address them.

Willem van Oers

In his capacity as the WG9 Secretary, Wim was part of the OECD team that produced a report in 2008 on present and future large nuclear physics facilities. A recommendation of that report was to use WG9 to bring together members of agencies that fund nuclear physics programs around the world in order for them to hear about the major questions in the field and to determine how to work together to develop facilities and research efforts to attack them. The first

symposium organized by WG9 was held in 2010 in conjunction with the International Nuclear Physics Conference in Vancouver. It was Wim who did the work to make that first symposium a success—it was very well attended by funding agency representatives from Europe, Asia, and North America. The science speakers at the symposium were asked to provide write ups of their talks. These write ups served as the introduction to the Report on Facilities starting in 2011. Following the initial symposium, WG9 organized the next one in 2013 and then, on request from funding agency representatives, has held them every two years since. The introductory section of the Facilities Report has been updated after each symposium with the overviews from the symposia talks. Putting together the symposia and then following them up to obtain written reports has required a significant effort, including finding excellent speakers and insuring that the funding agencies are well represented. The symposia have been a tremendous success due almost entirely to Wim's efforts.

Since 2006, WG9 has had yearly meetings, which are usually coordinated with the meetings of IUPAP Commission 12. This has produced a close working relationship between WG9 and C12 with members of each group attending the other group's meetings. It is the energy put in by Wim that has kept WG9 together and acting as a cohesive unit.

Tribute from the International Committee on Ultra-high Intensity Lasers (ICUIL) and Working Group 7 (WG7) of IUPAP



Terrance J. Kessler

Terrance J. Kessler is the Diversity Manager and Senior Research Engineer at the University of Rochester's Laboratory for Laser Energetics. Terry is working with various offices for diversity and inclusion to increase workforce diversity of the technical and scientific staff at LLE. In 1985 he formed the Optics and Imaging Sciences Group to support nuclear fusion research, working on the design and testing of high-peak-power lasers; laser coherence control; focal-spot zooming; and the development of distributed phase plates, distributed polarization plates, holographic transmission gratings, and other novel optical devices. Early in his career, he coordinated the scientific and engineering staff to invent and implement a focal-spot smoothing strategy that produced the most uniform target irradiance from an ultraviolet solid-state laser and he served as chief scientist during the concept and design stages of the OMEGA 60 laser upgrade. Concurrently, he maintained teaching laboratories at Rochester Institute of Technology's Imaging Departments in which he had instructed and trained students in optics and holography for 20 years. Terry currently serves as Secretary of the International Committee on Ultrahigh-Intensity Lasers (IUPAP WG7).

Tribute from José Adolfo de Azcárraga



Luis Viña

Professor Viña, a distinguished member of the Spanish Royal Physics Society (RSEF), has served in IUPAP for many years. In fact, he was a member of the Commission on Semiconductors (C8) for two periods: 1994-1997 and 2000-2002; he acted as Secretary of this C8 Commission from 2002 to 2005. Since 2002, the year that Spain rejoined IUPAP, he has served in the Spanish IUPAP Liaison Committee, of which he has also acted as its Secretary from 2005 to 2013, and thereafter as its President until to now.

Overall, Luis has contributed more than 20 years to IUPAP. Professor Viña has also greatly contributed to the activities of the C8 Commission and, not less important, he has maintained the presence of Spain at the IUPAP during difficult economic periods in which the payment of the Spanish IUPAP yearly quota was not always guaranteed, a situation which unfortunately Spain is again experiencing now. This has implied a considerable amount of effort devoted to this goal in the past, as well as at present.

As the President of the RSEF, a member of the Spanish IUPAP Liaison Committee, I have had the opportunity of appreciating Professor Viña's efforts to keep the ties between Spain and the IUPAP of which, I am happy to recall, Spain was one of its thirteen founding countries in 1922. Thus, I am convinced that his long and meritorious service deserve, without any doubt, this certificate in gratitude and appreciation from the IUPAP for having significantly helped IUPAP to achieve and sustain its mission.

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 2020)
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

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

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

UPCOMING ENDORSED COMMISSION CONFERENCES

C9: Commission on Magnetism

- IEEE International Conference on Nanomaterials – Applications and Properties (NAP – 2021)
5 – 11 September 2021, virtual meet, hosted by Odessa, Ukraine