

Activity report for the International Union of Pure and Applied Physics

IUPAP

for the period October 2023 to September 2024

The reference year has been a rewarding period for IUPAP. The Union continued to sponsor conferences across the disciplines of physics and also provided support for educational activities, among others for the African School of Physics and Applications. The Union's involvement in the International Year of Basic Sciences for Sustainable Development culminated with a spectacular closing ceremony in Geneva, Switzerland, that also introduced the 2024–2033 International Decade for Sciences for Sustainable Development—another UN observance to which IUPAP has been instrumental to get off the ground.

Representation in other bodies

IUPAP is a member of the International Science Council (ISC) and via this membership also in CODATA. The Union takes active part in both bodies via participation in the general assemblies and topical and regional meetings. Former chair of Commission 4 represented IUPAP at ISC Global Knowledge Dialogue for the Asia and the Pacific region in October 2023.

The committee for the International Year of Basic Sciences for Sustainable Development (IYBSSD), grouping a large number of unions, partners and supporters worldwide, was chaired by the IUPAP President and run its day-to-day operations under the auspices of the Union. This UN observance, after nearly 24 months of activities, was formally closed with a full day programme (<https://indico.cern.ch/event/1322261/>) in CERN's new Science Gateway building outside of the city of Geneva in Switzerland. The International Year on Quantum Science and Technology, to which IUPAP already gave its formal support in 2021, will run through 2025. Again, IUPAP has an active role, with the President Designate as member of the steering committee, and various activities to be orchestrated by Working Group 19. The Earth-Humanity Coalition, which was set up in response to the International Decade for Sciences for Sustainable Development, has for its first year of operation been fully supported by the IUPAP Secretariat. Its steering committee is led by the IUPAP President. The Coalition is expected to establish its own administrative structure early 2025.

IUPAP contributes to the Standing Committee for Gender Equality in Science. The website is available from <https://gender-equality-in-science.org>.

Globalizing physics

In the context of the IUPAP centenary, profoundly celebrated throughout 2022 and featured in [Nature](#), Roberto Lalli and Jaume Navarro, chair of Affiliated Commission 6, were tasked to edit an academic volume on the history of the IUPAP. The book, which is strongly applauded by the Executive Council, was recently published in an open access format by Oxford University Press. The reactions from readers and reviewers are still to be heard. Lalli and Navarro also published “When physicists strove for peace: past lessons for our uncertain times” in [Nature](#) in September this year, discussing science for peace and the role of IUPAP in an historic perspective.

In April 2023 the President represented the Union in the roundtable “Sanctions in Science—One year of sanctions”, organized by the loose network Science4Peace. Following this event there have been sporadic interactions between the participants. The discussions resulted in the paper “Alleviating the consequences of sanctions in international scientific cooperation” (<https://arxiv.org/abs/2403.07833>), which all authors signed without indicating their affiliation.

Conferences

One of the core IUPAP activities is to support the main conferences within the different physics disciplines. Conferences supported in [2023](#) and [2024](#) are listed on the IUPAP website. Since the last General Assembly, it has not been reported that any of the IUPAP sponsored conferences have prevented participation from any territory. Hence, the IUPAP principle to ensure free circulation of scientists is in general respected. However, there are countries that take unreasonable long time to process visa applications, which in some cases have made in-person participation impossible. The Executive Council monitors the situation and is ready to react. The possibility for researchers to participate at conferences using IUPAP as their affiliation remains open.

The organization of the conferences is a distributed effort. The work of the Commissions—in close collaboration with the conference organising committees—is essential for the success of the various meetings. This activity is of immense value to the community and remains a main driver to maintain and develop the different branches of physics.

The conferences are good venues for making IUPAP better known. Commission 12 used this opportunity at the opening session of the 10th International Conference on Quarks and Nuclear Physics—an example to be followed by all other commissions.

The African School of Fundamental Physics and Applications took place in Morocco, on July 7-21, 2024. The school has evolved to be much more than a regular school—it is a programme of actions with directed ethos toward physics as an engine for development in Africa.

Membership

Territorial members

A large part of the territorial members remains strongly engaged with IUPAP. Arrangements have been concluded with Jordan to resume an active membership, South Africa has expressed interest to change from membership category 3 to 5, and Nigeria has expressed its wish to have the membership reinstated. The Executive Council has given positive feedback to all the three items and will bring it up for vote at the General Assembly. Explorations how Australia and New Zealand can help to get the Pacific Islands included in the IUPAP fold is ongoing. This is a process that requires time, but the Executive Council remains positive and optimistic. There has also been discussions with other territories about membership, but none of these are close to any conclusion yet.

Payment of dues

The situation remains stable. Most members are strongly committed to honour their dues, but there is a group of members that are in arrears since quite some time and do not show much interest in the IUPAP activities. The situation has been tolerated as the Union did not want to exclude members during the centenary celebrations. The situation was addressed at the 2023 General Assembly and it expected that concrete actions will be taken at the 2024 General Assembly. Those members who suffer from national restrictions or international sanctions and are prevented from paying their dues will obviously be handled separately.

Corporate associate members

Since the introduction of the membership class “Corporate associate members” in October 2021, the Union has attracted [six members](#) in this category, constituting seven so-called units. Working Group 16 hosted a satellite event, “[The role of Academia and Industry to inspire the next STEM generation](#)”, at the Big Science Business Forum in Trieste, Italy, on 1 October with the hope of making IUPAP an interesting network for physics related companies. The next step will be to get corporate associate members involved in the work of the commissions and the various working groups, obviously in addition to participate in the conferences.

Associate territorial members

At the 2023 General Assembly, Nepal was admitted as the first Associate territorial member of the Union. This membership category is intended as a pre-stage to membership for potential Territorial members.

Equity, Diversity and Inclusion

Addressing the aspects of equity, diversity and inclusion in physics is high up on the IUPAP agenda. The Union has a dedicated Gender Champion who takes special of these matters. In 2024 Working Group 5 Women in Physics celebrates 25 years of existence with a solid symposium as part of the General Assembly in Heikou. The chair of the working group represented IUPAP at “Increasing Diversity and Inclusion in Science: Proposals to Boost STEM Participation in Underrepresented Groups”.

Special actions

IUPAP sent a letter of support for the integrity of Argentina’s science system. The Executive Council believe it was an important action, but no reaction has been recorded.

IUPAP was represented by the President and the Secretary General for legal and financial affairs in a roundtable organized by the American Physical Society. As a result, IUPAP co-signed a set of [Principles and policies for international scientific collaboration](#). The statement was presented for the first time at the closing ceremony for the International Year of Basic Sciences for Sustainable Development.

IUPAP co-sponsored the Memorial Service in honor of Professor Tsung-Dao Lee, an event that gather an enormous interest in the digital sphere in addition to those who where physically present.

Communication

IUPAP is publishing its Newsletter with regular intervals. Much of the same news items are also posted to social media and LinkedIn. The LinkedIn is gaining popularity, but has still has still s good potential for growth.

Administrative affairs

Headquarters and administrative offices

The IUPAP headquarters is based in Geneva. IUPAP is registered as an association under Swiss law and benefits from tax exemption. To support the operation IUPAP has an administrative office in Trieste run by *Fondazione Internazionale Trieste per il Progresso e la Libertà delle Scienze*. The entity in Singapore, *International Union of Pure and Applied Physics Singapore Ltd.*, is still in the process of being wound up.

Restructuring of IUPAP

After 100 years of existence, it is time to review the functioning of the Union. In 2023, a self-evaluation was carried out. This work was followed up by an external review conducted during the first part of 2024. The two evaluations are meant to be the basis for a restructuring of IUPAP. The aim is to achieve a more efficient way of working and better communication across the different IUPAP bodies. The external review will be presented for discussion at the General Assembly in Heikou.

Prizes

The Commissions invest substantial work in evaluating candidates for prizes—prizes that are highly appreciated by the recipients and which have gained status within the respective physics disciplines. The awardees of the Early Career Scientist Prize have all been featured in the IUPAP communication channels and many of them have also been invited to give presentations at the flagship conferences within their respective discipline. In 2023 the Union awarded for the first time the Interdisciplinary (inter-commission) Early Career Scientist Prize. The winners, Evelyn Tang (Rice University) and Stefano Martiniani (New York University), were presented at the General Assembly in Geneva and will both give presentations at the Inter-Commission Symposium in Heikou.

The 2022 Henri Abraham award was given to Judy Franz and Lev Shchur at the 2023 General Assembly.

The IUPAP Kennedy Reed Medal for Outstanding Contributions to the Enhancement of Physics in Developing Countries was given to Malik Maaza and will be presented at the General Assembly in Heikou.

In addition to its own prizes, IUPAP regularly nominates candidates for prizes handed out by other bodies.

Commissions and Working Groups

All the Commissions seem to function well—holding regular meetings, proposing conferences for sponsorship and endorsement, hand out prizes etc. Establishing the International Association for Physics Students (IAPS) as an affiliated commission has proved to be a very productive way of collaborating. IAPS brings in young minds in various IUPAP activities, a diversity aspect that often makes a big difference.

Most of the Working Groups seem to function well. WG16 (Physics and Industry) has also in 2024 continued to work particularly closely with the Executive Council as getting more corporate associate members is considered a priority.