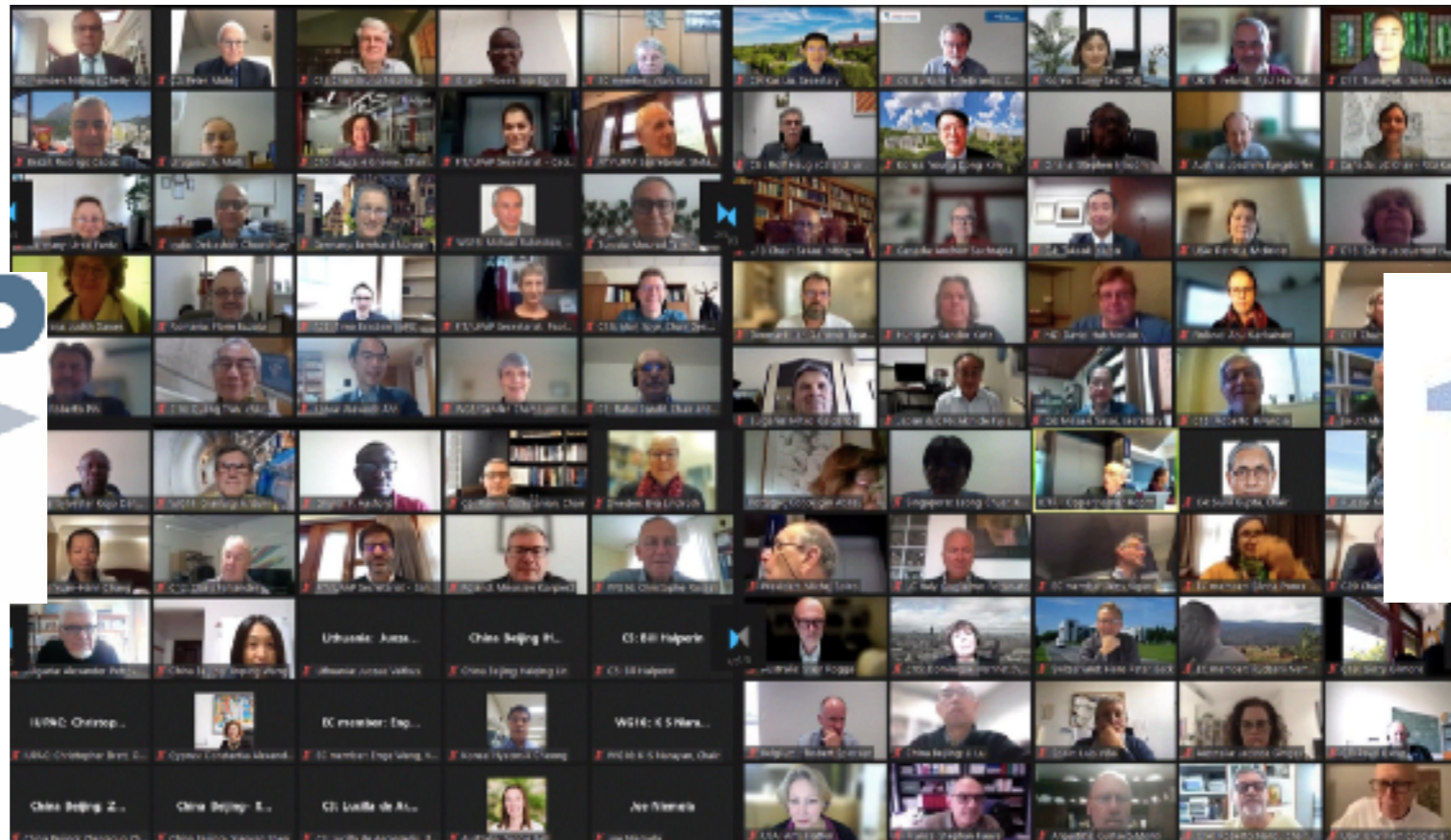


100 years of existence of the International Union of Pure and Applied Physics, IUPAP



Silvina Ponce Dawson

University of Buenos Aires and CONICET, Argentina

President Designate, IUPAP





International Union of Pure and Applied Physics

<https://iupap.org/>

IUPAP is the only global international Scientific Union dedicated to all areas of physics. It is run by physicists from all fields and continents

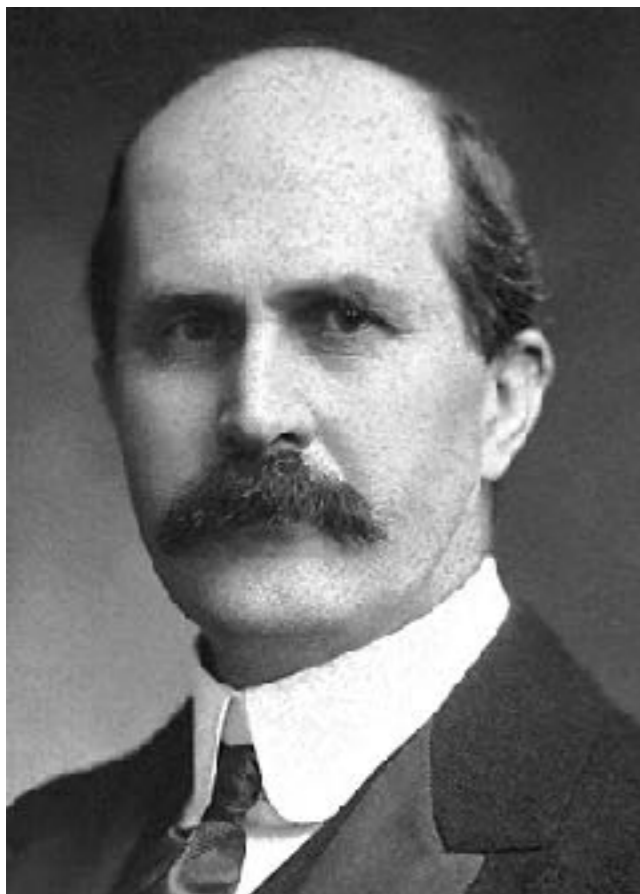
Mission: To assist in the worldwide development of physics, to foster international cooperation in physics, and to help in the application of physics toward solving problems of concern to humanity

A little bit of history

1919: Creation of the International Research Council (*to co-ordinate international efforts in the different branches of science; to form international scientific associations; to direct international scientific activity in subjects not falling within the purview of any existing association; and to enter into relation with the governments of the countries adhering to the Council in order to promote investigations falling within its competence*).

1922: Creation of an International Physics Union, IUPAP

Initially, 13 country members: Belgium, Canada, Denmark, France, Holland, Japan, Norway, Poland, Spain, Switzerland, UK, USA, Union of South Africa.

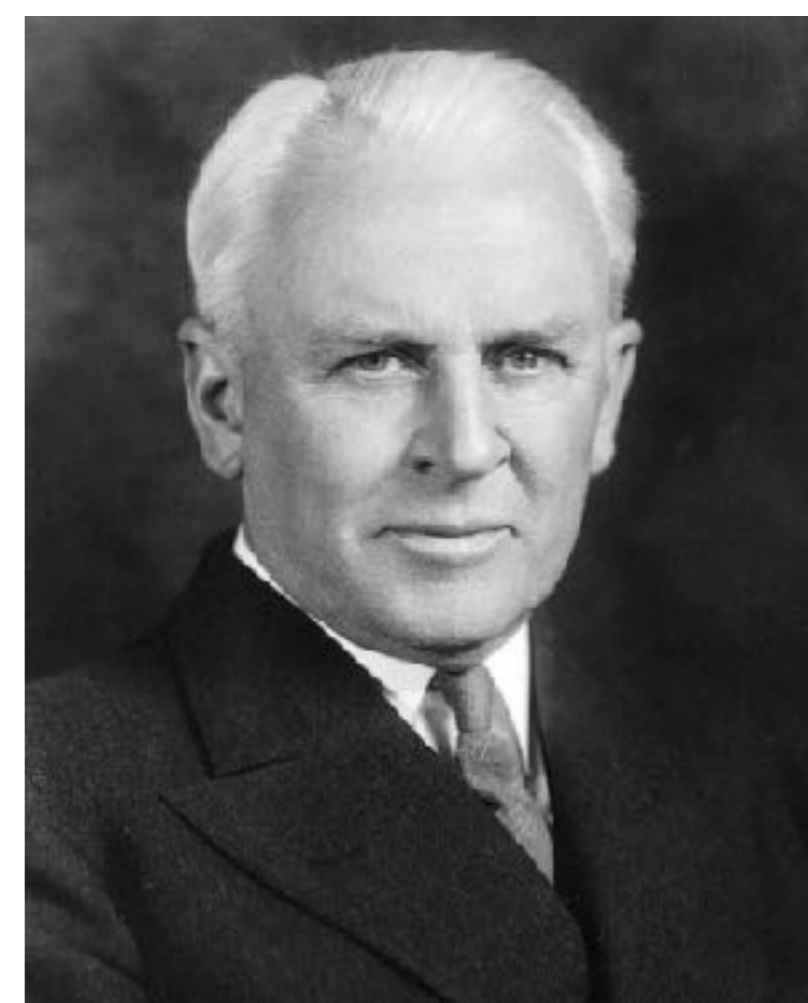


First IUPAP President:

William Henry Bragg (1922-1931),
Nobel Prize in Physics 1915

1923: First General Assembly (in Paris) with 3 more countries: Italy, Sweden and Czechoslovakia

Second IUPAP President:
Robert Millikan (1931-1937),
Nobel Prize in Physics 1923



In 1931 the delegates worked hard on the first report of the SUN (Symbols, Units and Nomenclature) Commission, resolving on the definition of the joule, the calorie as well as on various electromagnetic units.

1937-1947: turbulent period, Manne Siegbahn president

1947: GA with 21 members. **1948:** GA with 23 members. Organization of commissions on physics subfields.

1951: GA that marks the IUPAP's activities for 20 years: increased activities in specialized areas of physics, greater involvement in inter-union affairs and expansion of the International Conference program.

All these activities (units, specialized areas, international conference program, involvement in inter-union organizations) are still at the core of IUPAP's, but we have expanded our aims and actions and increased in membership as well.



Where do we stand now?

We now have 60 territorial members representing identified physics communities from all over the world.



At our last GA (October 2021) we approved a new set of Articles and Regulations that allow the existence of corporate members too (companies, large scientific facilities and/or organizations, etc)

We also approved a Strategic Plan with an expanded set of aims:

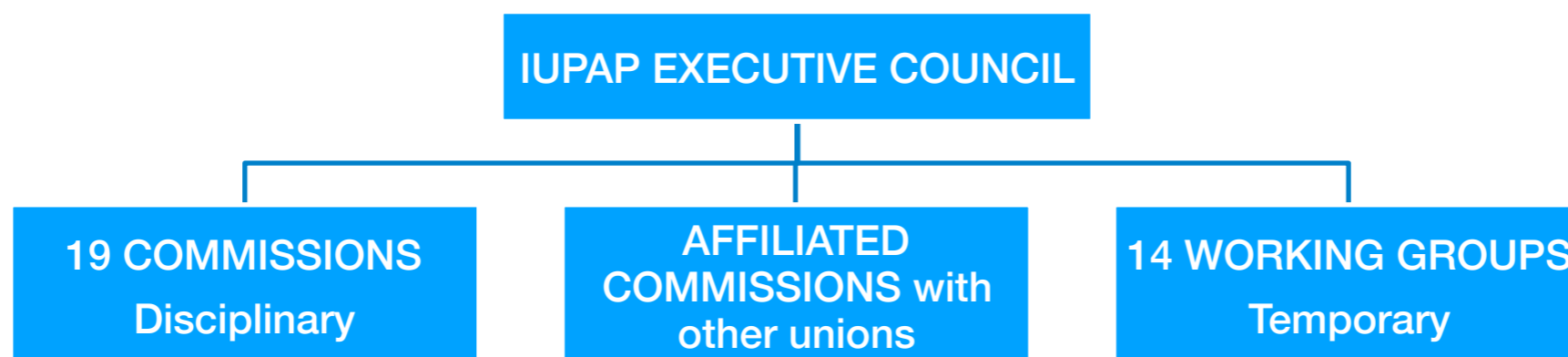
- *Assist in the worldwide development of physics and **promote physics as an essential tool for development and sustainability**;*
- *Engage in the strengthening and improvement of **physics education**, particularly in **developing countries**;*
- ***Increase diversity and inclusion in physics**, enhancing the participation and recognition of **women and of people from under-represented groups**;*
- *Foster international cooperation and sponsor suitable international physics meetings;*
- *Promote the free circulation of scientists and the open access to data;*
- *Enhance the vital role of **early career physicists**;*
- *Strengthen the links with **physicists working outside academia** and with other scientific communities;*
- *Uphold openness, honesty and **integrity** in the practice, application and promotion of physics;*
- *Promote international agreements on symbols, units, nomenclature and standards.*



Our current structure

Main Governing body: General Assembly. It used to meet triennially, but with the new set of Articles it will convene yearly (in person every three years). Weighted voting system for territorial members that depends on #of shares of member.

In between GAs, decisions are made by the Executive Council in consultation with the chairs of the specialized commissions and affiliated commissions:



Officers of the Executive Council (meet monthly): President (*Michel Spiro*); Past president (*Bruce McKellar*); President Designate (*SPD*); Secretary General for Administrative Affairs; Secretary General for Legal and Financial Affairs; Associate Secretary General; Deputy SG for Administrative Affairs; Treasurer

Other members of the Executive Council: 4 Vice Presidents at Large + 5 VPs who are Chairs of Commissions

EC&CC: meet at least once per year. Observers (e.g., regional societies) are invited to attend.

Commissions, ACs and WGs

C1: Policy & Finance

C2: Symbols, Units, Nomenclature, Atomic Masses and Fundamental Constants

C3: Statistical Physics

C4: Astroparticle Physics

C5: Low Temperature Physics

C6: Biological Physics

C8: Semiconductors

C9: Magnetism

C10: Structure and Dynamics of Condensed Matter

C11: Particles and Fields

C12: Nuclear Physics

C13: Physics for Development

C14: Physics Education

C15: Atomic, Molecular, and Optical Physics

C16: Plasma Physics

C17: Laser Physics and Photonics

C18: Mathematical Physics

C19: Astrophysics

C20: Computational Physics

AC1: International Commission for Optics

AC2: International Commission on GR and Gravitation

AC3: International Commission for Acoustics

AC4: International Commission on Medical Physics

AC5: Affiliated Commission of Physics Students

(IAPS); new

AC6: Affiliated Commission on the History and

Philosophy of Physics (with DHST/IUHPST); new

WG1: International Committee for Future Accelerators

WG2: Communication in Physics

WG5: Women in Physics

WG7: International Committee on Ultrahigh Intensity Lasers (ICUIL)

WG9: International Cooperation in Nuclear Physics

WG10: Astroparticle Physics International Committee

WG11: Gravitational Wave International Committee

WG12: Energy

WG13: Newtonian Constant of Gravitation

WG14: Accelerator Science

WG15: Soft Matter

WG16: Physics and Industry

WG17: IUPAP's Centenary

WG18: Ethics

WG19: Quantum Science and Technology



Budget and Sponsored Activities

Budget: *Income* mostly comes from the shares.

Main sponsored activities: international conferences and awards

Conferences (<https://iupap.org/conferences/>)

- Different types (A,B,C and D; D: in developing countries)
- Analyzed by Commissions (approved by Council)
- Endorsement (open all the year)
- Sponsorship (applications open end Jan-end May for next year's conferences)

Each year, IUPAP sponsors and endorses ~50 conferences with special attention given to those held in developing countries.

Awards (<https://iupap.org/awards/>)

- For established scientists
 - Early Career Scientists (8 years since PhD)
 - Analyzed by Commissions (approved by Council)
- ~200 prizes have been awarded in the last 10 years*

Visit our website, <https://iupap.org/>, regularly to learn about open calls



A decision that had a huge impact on the developing world: the creation of the Working Group on Women in Physics

This was approved by the 23rd IUPAP General Assembly, Atlanta, GA, USA, 18-20 March 1999

6. Resolution on Formation of the Working Group on Women in Physics

It is resolved that an IUPAP Working Group on Women in Physics be formed. The mandate of the group shall be to:

- survey the present situation and report to the Council and the liaison committees
- suggest means to improve the situation for women in physics.



Marcia Barbosa, Chair WG5, IUPAP (1999-2005); VP & Gender Champion (2011-2014)



WG5 in 2000 @White House.

Left to right 1st row: Judy Franz, USA, Nandini Trivedi, India; Elisa Molinari, Italy; Yosr Gamal, Egypt; Ling-An Wu, China; Katharine Gebbie, USA; Marcia Barbosa, Brazil. 2nd row: Beverly Hartline, USA; Erika Ridgway, APS; Jackie Beamon-Kiene, APS; Herwig Schopper, CERN, Switzerland; Barbara Sandow, Freie Universität, Berlin-Germany. (Photo courtesy of Holly Gwin)



Jackie Beamon-Kiene
One of the 4 recipients of the recently established Henri Abraham Award for distinguished long-term service to IUPAP

First activities of the Working Group:

- Subcontracted the American Institute of Physics to perform a survey on the situation of women physicists. WG disseminated via e-mail the questionnaire (in English) which was responded by more than 1000 women from 55 countries.
- Encourage the formation of working groups by country in as many countries as possible to collect local information on the situation of women physicists. Country team leaders acted as contact points.
- This structure allowed the establishment of a very active network of women physicists which still exerts a very strong influence on the physics communities across the world.
- The information collected through the first survey was presented at the First International Conference on Women in Physics, Paris, 2002, which was attended by over 300 physicists from 65 countries.

After the First ICWIP the Working Group organized an ICWIP once every three years:

Paris, France, 2002



Rio de Janeiro, Brazil, 2005



Seoul, South Korea,



Stellenbosch, South Africa, 2011



Waterloo, Canada, 2014



Birmingham, UK,



Australia 2020 had to be transformed into Australia-virtual 2021

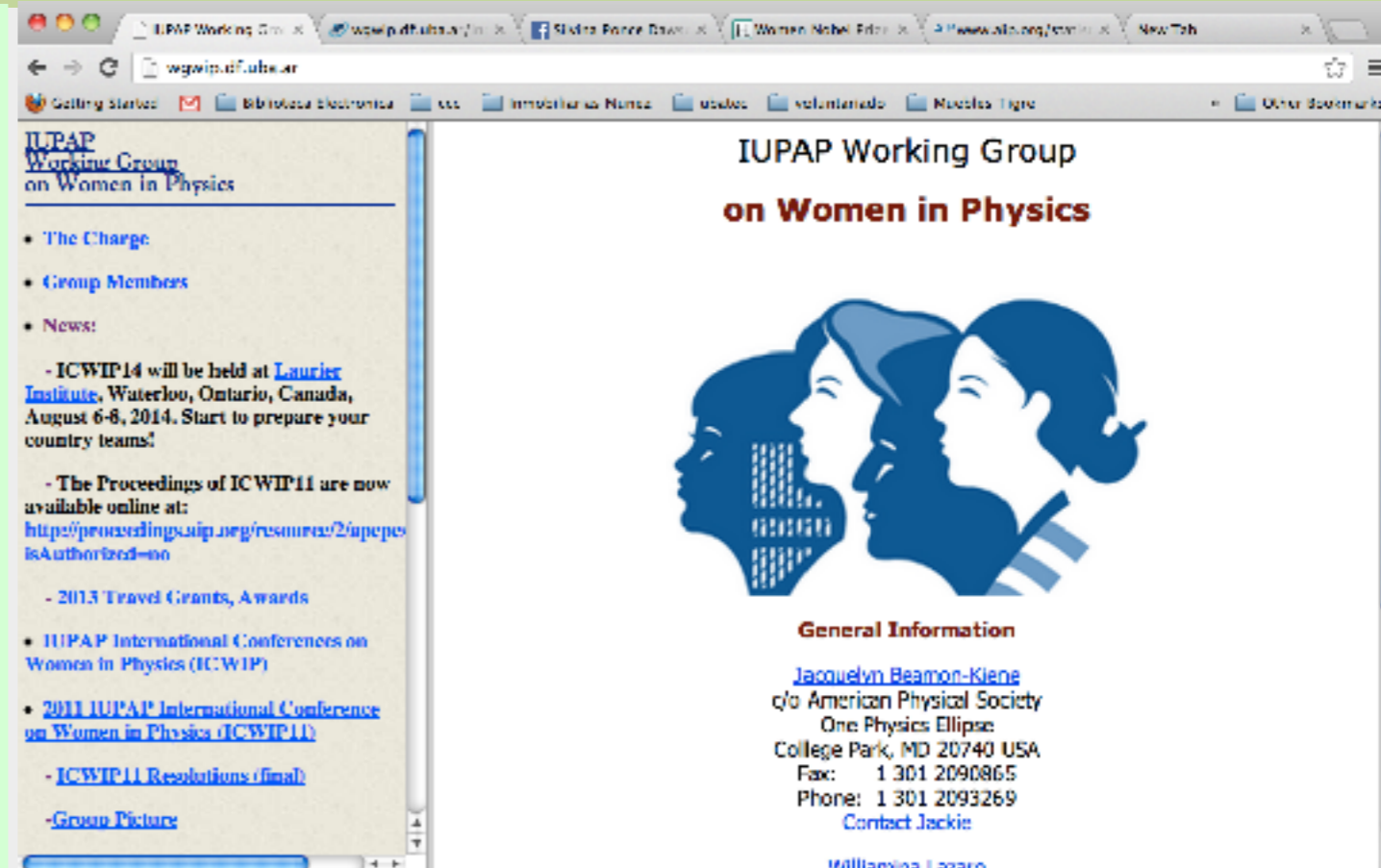
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ICWIPs are the main platform where to exchange experiences across countries and cultures. They generate recommendations and resolutions for the IUPAP to uphold. Over the years, they've served to change the IUPAP's own structure and strengthen its actions to increase diversity and inclusion.

From the conference, each team should bring to its own country ideas to put forward. It is the time for them to work.

The Working Group maintains an informative web page (wgwip.df.uba.ar) which includes:

- List of country team members and team leaders with contact information
- Results of ICWIPs workshops and discussed issues
- Resolutions at the different IUPAP Assemblies
- Useful links & resources
- Announcements



Another important activity of the Working Group has been awarding Travel Grants (during non ICWIP years) to women physicists (mostly, early career) from developing countries to participate in activities (conferences, workshops, schools) outside their countries.

The IUPAP adopted other policies for its own organization and sponsored activities to increase gender diversity and inclusion

In 2011 it created the position of Vice President At Large with Gender Champion duties with the task of verifying the compliance of IUPAP's gender-related policies (especially in conferences). It is also an ex-officio member of WG5 and represents IUPAP on some inter-union structures, such as the Standing Committee for Gender Equality in Science, SCGES.

The 29th GA (Sao Paulo, 2017) established as a recommendation a 20% target of female participation in conferences. It also determined that meetings with female participation of less than 10% would not be accepted for sponsorship.

IUPAP now requires that the conferences it sponsors publish on their websites and in all publications related to the Conference a specific statement on harassment. It also requires that conference organizers name an advisor who will consult with those who have suffered from harassment and another who will counsel those accused of harassment.

It also encourages the organization of a session for all conference attendants on Diversity and Inclusion in Physics (plenary session, exhibition, debate, etc)

The 30th GA (2021) adopted the Waterloo Charter for Gender Inclusion and Diversity in Physics, a declaration of principles endowed with a list of policies and actions to increase diversity and inclusion in physics.

Career interruptions (which mostly affect women) should be taken into account when counting years since PhD for Early Career Awards

Commission chairs must guarantee the diversity of the pool of candidates they are considered for awards, extending deadlines if necessary

Nominators must state that there are no concerns that IUPAP should be aware of regarding the nominee satisfying that he/she meets the commonly held standards of professional ethics and scientific integrity.

IUPAP's new set of articles and regulations (adopted in 2021):

Executive Council.

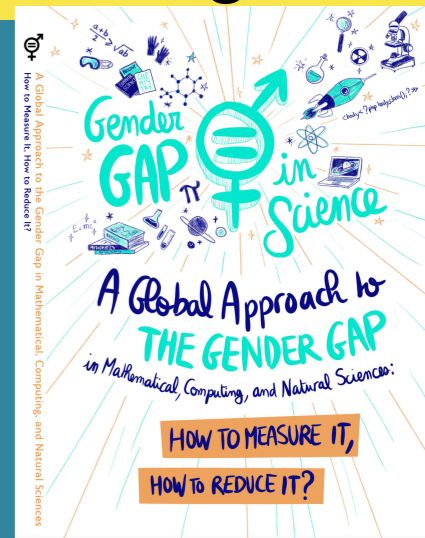
Normally, at least one of the President, President-Designate and Immediate Past President will be a woman, and at least one shall be a man.

Commissions.

shall be composed of a Chair, Vice-Chair, Secretary and eleven other members. Collectively the Chair, Vice-Chair, and Secretary are referred to as the officers of the Commission, and normally at least one of them shall be a woman, and at least one shall be a man.

Developments that were not foreseen when the WG on WiP was created: Impact on inter-union liaisons

Gender Gap in Science Project, <https://gender-gap-in-science.org/>



allowed us to learn and exchange ideas across disciplines



And led to the creation of the Standing Committee on Gender Equality in Science, <https://gender-equality-in-science.org/>



Other IUPAP activities of impact on physics (and science) communities across the world.

- Statements and position papers to induce and/or accompany changes and to support physics communities (declaration on race; Waterloo Charter; letter addressed to governments).
- Rules on its own structure that can be copied by national and regional societies (domino effect)
- Rules on conferences and awards to further induce change
- Targeted projects and policies
- Newsletters (4 per year)
- Hopefully: increased visibility (with all planned changes!)

Inter Union Relations



Liaisons with other scientific unions

More or less permanent or through specific projects

- With IUPAC to work on nomenclature and definition of new elements; also for IYPT
- With IUCr on the LAAAMP Project
- With 9 international unions on the Gender Gap Project
- With various international unions that are Affiliated Commissions of IUPAP
- Through associate members on Commissions (IUPAB on C6)
- With International Commission for Acoustics for IYS
- With many international organizations and unions for IYBSSD

Some current projects and future activities

<https://laamp.iucr.org/>



LAAAMP started in 2016 with an ISC grant awarded to IUPAP & IUCr for their project entitled ***Utilization of Light Source and Crystallographic Sciences to Facilitate the Enhancement of Knowledge and Improve the Economic and Social Conditions in Targeted Regions of the World.***

The aim is to enhance Advanced Light Sources (AdLS) and crystallographic sciences in Africa, the Americas, Asia, Middle East and Pacific Islands.

It has strategic plans for some specific regions or countries. The plan for SE Asia is led by the Thai Synchrotron National Lab which has as its goals the training of large numbers of SE Asian scientists, engineers, students and technicians in the design and utilization of advanced light sources and the enhancement of the existing community of AdLS.

Approved by UNESCO's General Conference in 2019, the year 2022 was declared International Year of Basic Sciences for Sustainable Development by the United Nations General Assembly in December 2021.

This was the result of the mobilization of several international organizations led by IUPAP.



Many unions, academies of science, scientific institutions adhere to the Year and will participate in the organization of various activities which will focus on the links between basic sciences and the Sustainable Development Goals that define the United Nations Agenda 2030.

The opening ceremony will take place at UNESCO headquarters on July 1st, 2022. The closing ceremony is expected to take place at CERN's Science Gateway in 2023. Anybody willing to organize an event, an initiative or a program during IYBSSD 2022 that would like an official endorsement is invited to fill out the form available on the IYBSSD website.



Centenary Celebrations
<https://iupap.org/centennial/>



Centennial Symposium at the ICTP in Trieste, Italy, on 11-13 July 2022. With keynote speakers, discussion panels, regional sessions (one on Asia), this will be an opportunity to discuss our new vision and advance with our Action Plan. The emphasis will be on aspects of the IUPAP history, developing countries, international collaborations, physics education, diversity and inclusion.

Activities around the world. There will be dedicated activities in Africa, Asia and Latin America. Everybody is invited to celebrate the IUPAP centenary in their own countries and regions.

Photo Contest, to portray the beauty of physics and its practice. Two categories: “Beyond Our Eyes” (for images obtained with scientific equipment or via numerical simulations) and “At A Glance” (for all other images). The contest will be open for submissions for two months starting in February 2022. A jury will select 6 finalists in each category, half of which will receive a monetary award. Three more photos will be voted through social networks. The winners will be announced by the beginning of July and will receive their awards during the Centennial Symposium. These 15 photos/images will be made available for printing and to be used as screensavers on various formats and will be shown at special exhibitions.

Have your national physics community be part of the international physics community represented by IUPAP

Membership Benefits

- Be part of the world physics community represented by IUPAP and thus enable scientists to cooperate freely across political boundaries.
- Have members of your local community take part in decision-making that impacts physics significantly on an international level.
- Contribute to an international platform where scientists can raise their voices and express their views on any matter that relates to physics and propose plans to address them
- Contribute to the definition of good conduct and good practice rules in science practice.
- Learn from the enriching cross-cultural and inter-generational dialogue habilitated by IUPAP.
- Have a direct representation in commissions which cover all subfields of physics and other endeavors such as physics for development, physics and industry and physics education.
- Have a direct participation in working groups and committees that address specific challenges of current concern such as inclusion and diversity, sustainability and energy.
- Be part of our inter-disciplinary efforts through affiliated commissions and joint projects with other international unions, and through the IUPAP's participation in the ISC
- Receive special attention to host IUPAP conferences, meetings and events.
- Be directly involved in the celebrations for the IUPAP's centennial
- Be directly involved in the definition and organization of the activities related to the International Year of Basic Sciences for Sustainable Development.
- Get the support of the IUPAP to address local authorities on issues of local concern

Visit our website to learn how to apply for membership



Silvina Ponce Dawson



Challenge gender stereotypes and end gender violence.

LET'S DO IT TOGETHER



IYBSSD 2022

International Year of Basic Sciences for Sustainable Development

Thank you!