

IUPAP report

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Swedish
Research
Council

*Knut och Alice
Wallenbergs
Stiftelse*

- The International Union of Pure and Applied Physics (IUPAP) was established in 1922
- It currently has 52 Territorial Members
- The aims of the Union are:
 - 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;
 - 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**

Selected actions

- IUPAP endorses and sponsors international conferences and workshops:
 - **Type A**, or General, conference. Large general meeting of 750 -1000 attendees covering an entire field (i.e. the area covered by a Commission).
 - **Type B**, or Topical, conference. Smaller with 300 - 500 attendees on a subset of topics.
 - **Type C**, or Special, conference. 50 - 200 attendees on a specialized topic, and may be a workshop.
 - **Type D**, workshops in developing countries.
- IUPAP sponsors a number of awards for scientists at different stages of their careers
 - **Major prizes** honor the achievements of established renown physicists within the subfields of each Commission.
 - **Early Career Scientist Prizes** recognize the contributions of early career physicists within these subfields.

- The Union is governed by its General Assembly
- The Council is its top executive body, supervising the activities of specialised International Commissions, Affiliated Commissions, Standing Committees and Working Groups
- International Commissions
 - C1: Commission on Policy and Finance
 - C2: Commission on 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: Commission on 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

C4: Astroparticle Physics

- C4 promotes the exchange of information among the members of the international scientific community in the general field of Astroparticle Physics, including
 - The nature and characteristics of the electromagnetic, particle and other radiation present in the cosmos;
 - The theory and models concerning the origin of this radiation;
 - Non-accelerator high energy physics;
 - The specialised technologies necessary in the field and their application

C4 mandate and composition

■ Mandate includes:

- Initiate and support international conferences such as ICRC, ISVHECRI, TAUP, VLVnT, IDM, and TeVPA
- Promotion of free circulation of all scientists
- Award the IUPAP Early Career Scientist Prize in Astroparticle Physics
- Award the Homi Bhabha Medal and Prize "*to an active scientist who has made distinguished contributions in the field over an extended career*"
- Award the O'Ceallaigh Medal "*to a scientist who has made distinguished contributions to Cosmic Ray Physics*"
- To maintain liaison with other IUPAP Commissions, and make available to each General Assembly of the Union a summary of activities

■ Members:

- Ralph Engel, Germany (Chair)
- Christina M. S. Cohen, United States (Vice-Chair)
- Carola Chinelatto, Brazil (Secretary)
- Yvonne Wong, Australia
- Zhiguo Yao, China(Beijing)
- Rami Vainio, Finland
- Pankaj Jain, India
- Elena Amato, Italy
- Shoichi Ogio, Japan
- Sergey Troitsky, Russian Federation
- Du Toit Strauss, South Africa
- **Riccardo Catena, Sweden**
- Yuan-Hann Chang, China (Taipei)
- Subir Sarkar, United Kingdom

2025-2029 IUPAP conferences



- ICRC 2027, July 20-29, Buenos Aires, Argentina
- TAUP 2027 in Munich, Germany
- **TAUP 2029 at Chalmers, Gothenburg, Sweden!**

2025 awarded prizes

IUPAP Early Career Scientist Prize

... to recognize research by young scientists with a maximum of 8 years research experience following a PhD (excluding career interruptions)

Dr. Rebecca Diesing

Institute for Advanced Study & Columbia University

for her contributions in unravelling the non-thermal phenomenology of astrophysical objects such as novae, supernova remnants, and active galactic nuclei



Honors: Damiano Caprioli
Presenter: Ralph Engel
Acceptance: Rebecca Diesing

IUPAP Early Career Scientist Prize

... to recognize research by young scientists with a maximum of 8 years research experience following a PhD (excluding career interruptions)

Prof. Ali Kheirandish

University of Nevada, Las Vegas

for his theoretical insights in associating X-ray emitting active galaxies with sources of cosmic neutrinos and his direct contributions to the experimental confirmation



Honors: Francis Halzen
Presenter: Ralph Engel
Acceptance: Ali Kheirandish

O'Ceallaigh Medal

... to honour outstanding contributions to cosmic ray physics and to recognize significant contributions to our field over an extended career

Prof. Luke O'Connor Drury

Dublin Institute for Advanced Studies

for his fundamental contributions to the development of the theory of diffusive shock acceleration with special emphasis on the non-linear aspects



Honors: Subir Sarkar
Presenter: Ralph Engel
Acceptance: Luke Drury

IUPAP-TIFR-LOCUS Homi Bhabha Award

... to recognize an active scientist who has made distinguished contributions in the field of cosmic ray physics over an extended academic career

Prof. Barry C. Barish

California Institute of Technology (Caltech)

for his pivotal leadership role in the design and development of the LIGO gravitational wave telescope and the MACRO detector in the Gran Sasso underground laboratory, and for fundamental contributions to the development of multi-messenger astrophysics



Honors: Fulvio Ricci
Presenter: Ralph Engel and Sunil Gupta
Acceptance: Barry Barish

C11: Particles and Fields

Mandate and continuing responsibilities

International exchange in particle physics, including theory, experiments, accelerators, detectors and their applications.

Conference oversight and access for scientists worldwide.

Prizes and fair recognition of individual contributions.

Accelerator coordination and access to HEP information.

2025–2027 commission

Chair: Marcelo Gameiro Munhoz (Brazil)

Vice-chair: Isabell Melzer-Pellmann (Germany)

Secretary: Liangjian Wen (China)

3 officers, 11 other members and 3 associate members

Global liaison network

Nine regional liaisons connect C11 with local HEP communities.

Sweden and Western Europe: Roman Pasechnik

C11: recent progress

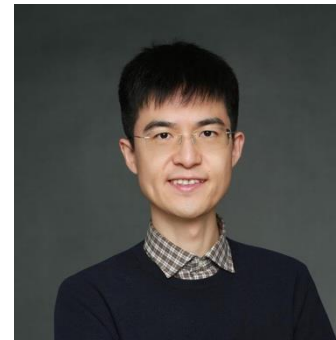
2026 Early Career Scientist Prizes

Two prizes every two years



Barbara Maria Latacz

Coherent spectroscopy of a single antiproton spin in BASE at CERN.



Huilin Qu

Machine learning for boosted-particle tagging and Higgs-to-charm searches at the LHC.

ICFA within C11

IUPAP made ICFA a Standing Committee under C11 (Oct 2025).
Bylaws / terms of reference: Executive Council review in Oct 2026.

August 2026: ICFA supports full HL-LHC exploitation and FCC-ee development and implementation.

Open information and data preservation

C11 urged sustained support for HEP information services in 2025.
ICFA endorsed data-preservation and open-science recommendations.

C11: Lepton Photon, ICHEP & TIPP

Recent editions

Lepton Photon 2025: Madison, USA, 25–29 August

ICHEP 2026: Natal, Brazil, 30 July–5 August

ICHEP's first edition in Latin America

Next editions and confirmed host selections

Year	Series	Host	Dates / decision
2027	Lepton Photon	Shanghai, China	29 Aug–3 Sep
2028	ICHEP	Bangkok, Thailand	19–26 Jul (tentative)
2029	Lepton Photon	Birmingham, UK	Announced August 2026
2029	TIPP	Ljubljana, Slovenia	Announced August 2026
2030	ICHEP	Lund, Sweden	Announced August 2026

C11 selects hosts, monitors preparations and reviews participation.

C11: Conference support

2026 programme

Type	Scope	Conferences supported through C11
A	General	ICHEP 2026
B	Topical	LHCP 2026, IPAC 2026, TIPP 2026
C	Special	Higgs Hunting, SILAFAE, International Accelerator School, RPC

Participation: policy and reported outcomes

LHCP 2026: 115 PhD students among 427 participants (27%).

TIPP 2026: accommodation for about 70 at no additional charge.

Visa access, affordability, diversity and harassment prevention.

Next sponsorship round

2027 round closed. Next: 1 Jan–1 Jun 2027 for 2028 events.

Endorsement applications accepted throughout the year.