

# IUPAP – Commission 11 (Particles and Fields) Report

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*Presented to the IUPAP Executive Council and Commission Chairs*

*Period: January – October 2025*

## 1. Overview and Mandate

The mission of the IUPAP Commission 11 (Particles and Fields) is to promote international collaboration and the exchange of information in all areas of particle and field physics, encompassing both theoretical and experimental studies of the fundamental constituents of matter and their interactions. The Commission maintains liaison with the International Committee for Future Accelerators (ICFA) and supports the development and application of accelerators, detectors, and related technologies, including their industrial uses. It recommends, initiates, and coordinates international conferences, ensuring compatibility of schedules, and upholds the free circulation of scientists by assisting organizers in removing barriers to participation. Commission 11 also promotes excellence in the field through awards and medals, disseminates knowledge, and collaborates with other IUPAP commissions, scientific unions, and organizations on joint projects and conferences. In addition, it maintains close ties with IUPAP's general commissions—such as those on standards, education, and development—to ensure that insights from particle and field physics contribute to broader physics-wide activities. Finally, the Commission reports to each IUPAP General Assembly, summarizing developments and progress in the field since the previous meeting.

For the 2025-2027 mandate, C11 has the following composition:

### Officers

- Chair: Marcelo Gameiro Munhoz (Brazil)
- Vice-Chair: Isabell Melzer-Pellmann (Germany)
- Secretary: Liangjian Wen (China)

### Members

- Nicole Bell (Australia)
- Barbara Clerbaux (Belgium)
- Jana Bielčíková (Czech Republic)
- Shaaban Khalil (Egypt)
- Lydia Iconomidou-Fayard (France)
- Sandip Trivedi (India)
- Atsuko Ichikawa (Japan)
- Roman Pasechnik (Sweden)
- Franz Muheim (UK)
- Joel N. Butler (USA)

- Richard Lednicky (Russia)

### Associate Members

- Deepak Kar (South Africa)
- Deywis Moreno (Colombia)
- Oliver Stelzer-Chilton (Canada)

The commission set an agreement to maintain quarterly remote meetings and hybrid sessions at major conferences. During 2025, three meetings were organized:

- 1<sup>st</sup> C11 2025 Meeting: January 27<sup>th</sup> (<https://indico.cern.ch/event/1507565/>)
- 2<sup>nd</sup> C11 2025 Meeting: May 6<sup>th</sup> (<https://indico.cern.ch/event/1546195/>) and
- 3<sup>rd</sup> C11 2025 Meeting: August 24<sup>th</sup> (<https://indico.cern.ch/event/1560709/>), preceding the 32<sup>nd</sup> International Symposium on Lepton Photon Interactions at High Energies (Lepton-Photon 2025) in Madison, USA.

The discussions and actions motivated by these meetings are reported below.

## 2. Key Developments and Actions (January–October 2025)

In the first meeting of the year, the members reviewed the mission and structure of IUPAP and C11, emphasizing international collaboration, inclusion, and free circulation of scientists. Members discussed the new organizational framework for the 2025–2027 mandate, conference sponsorship guidelines, and upcoming events. Plans were made to launch the 2026 Early Career Scientist Prizes, strengthen liaison activities with other commissions and regions, and enhance communication and outreach. Immediate actions included preparing a support letter for the HEP information infrastructure to be sent to the European Strategy for Particle Physics (ESPP) update, contributing to ICFA-related working groups, and endorsing the IPAC 2026 conference. The meeting concluded with a call to increase engagement, visibility, and collaboration within the global particle physics community.

The second C11 meeting focused on improving the commission's outreach and addressing administrative matters. Key outcomes include confirming a hybrid annual meeting for August 24, 2025, during the Lepton-Photon conference, and appointing regional liaisons to act as IUPAP ambassadors. These liaisons are tasked with promoting IUPAP within their local high-energy physics communities. The group also discussed concerns about diversity at the upcoming Lepton-Photon conference and finalized a support letter for the HEP information infrastructure. The proposal to change WG-1 from an ICFA Working Group into a "Standing Committee under C11" was also discussed.

The C11 commission convened at its third meeting to evaluate supported conferences and strategize forthcoming initiatives. C11 reviewed reports for several IUPAP-supported conferences:

- **Final reports** for ICHEP 2024 and LHCP25.
- An **interim report** for Lepton Photon 2025.
- and **preparation reports** for ICHEP 2026, TIPP 2026, and Lepton Photon 2027.

The meeting resulted in the establishment of priority recommendations for 2026 conference support (see below), affirmation of the timeline for the 2026 Early Career Scientist Prize, and the receipt of a proposal to host an upcoming Lepton-Photon conference in Egypt. Additionally, the commission finalized regional liaison assignments to enhance global engagement and acknowledged ongoing efforts to integrate ICFA as a standing committee. The WG-14 (Accelerator Science) chair made a presentation to the commission members, and further discussions are needed to define its future proposals and status within IUPAP.

### **2.1. Support letter on behalf of the HEP information infrastructure for the ESPP**

C11 was requested to write a letter of support for the High Energy Information Infrastructure for the update of the European Strategy for Particle Physics. The letter was a strong statement of support for the High Energy Physics (HEP) information infrastructure. It argues that robust, open-access resources are essential for the global and collaborative nature of particle physics. The letter highlights key platforms like INSPIRE-HEP, arXiv, HEPData, and the CERN Open Data Portal as vital services that enable free access to literature, data, and analysis tools. C11 expresses concern that the long-term future of these resources is threatened. Therefore, it strongly recommends that major laboratories (like CERN) and global funding agencies provide sustained and comprehensive support to ensure these infrastructures continue to operate and expand.

### **2.2. Organizational Structure and Regional Representation**

One of the main goals of the current C11 mandate is to improve direct engagement with particle physicists and strengthen community belonging. Members are encouraged to act as IUPAP ambassadors, promoting visibility and outreach at international and regional conferences. A key decision was to formalize regional liaisons (see list below) with a mandate to improve communication between local HEP communities and IUPAP/C11. The following commission members were assigned as regional liaisons for eight global regions:

- Western Europe – Roman Pasechnik
- Eastern Europe – Jana Bielčíková
- North America – Oliver Stelzer-Chilton
- Latin America – Deywis Moreno
- Sub-Saharan Africa – Deepak Kar
- Middle East & North Africa – Shaaban Khalil
- East Asia – Atsuko Ichikawa
- South & South-East Asia – Sandip Trivedi
- Oceania – Nicole Bell

Several proposals for the duties of these liaisons (and all C11 members) concerning this task were discussed, like:

- Secure a slot to present IUPAP/C11 at local or regional conferences.
- Organize local meetings with the HEP community.
- Consider conducting surveys to gather community concerns.

## 2.2. ICFA and Working Group Developments

ICFA (WG1) was proposed to become a Standing Committee under C11, with approval expected during the 34<sup>th</sup> General Assembly (October 2025), which is strongly supported by C11 members. WG14 (Accelerator Science) submitted updated Terms of Reference by May 2025, with discussions ongoing to define its new role.

## 2.3. Conferences and Meetings

One of the main responsibilities of C11 is to support and monitor major conferences. The approved conferences (from the previous mandate) for 2025 are:

- Type A
  - 32nd International Symposium on Lepton Photon Interactions at High Energies (ISLPIHE-2025)
- Type B
  - International Conference on Large Hadron Collider Physics (LHCP25)
- Type C
  - Higgs Hunting 2025 (Higgs-2025)
  - European Physical Society Conference on High Energy Physics (EPS-HEP-2025)

All the organizers of these conferences reported during the third meeting of 2025 (see <https://indico.cern.ch/event/1560709/>).

For 2026, the following conferences were recommended by C11 for IUPAP support (in priority order). Emphasis was placed on scientific merit, international representation, gender inclusion ( $\geq 10\%$  women invited speakers), and adherence to the free circulation and anti-harassment policies:

- Type A:
  1. 43rd International Conference on High Energy Physics (ICHEP 2026), Natal, Brazil
- Type B:
  2. International Conference on Technology and Instrumentation in Particle Physics (TIPP 2026), Mumbai, India
  3. International Conference on Large Hadron Collider Physics (LHCP2026), Paris, France
  4. International Particle Accelerator Conference (IPAC 2026), Deauville, France
- Type C:
  5. Latin American Symposium on High Energy Physics (SILAFEA 2026), Bogota, Colombia
  6. International Accelerator School (IAS 2026), Melbourne, Australia
  7. 16th workshop of the "Higgs Hunting" 2026, Paris, France

The following conferences will take place in 2025, and C11 recommends the endorsement (type C):

8. Beyond Standard Model: From Theory to Experiment (BSM 2025), Istanbul, Turkey

9. 53rd International Symposium on Multiparticle Dynamics (ISMD2025), Corfu, Greece
10. The 44th International Symposium on Physics in Collision (PIC-2025), Giza, Egypt

Sponsorship criteria reinforce diversity, affordability, and the Universality of Science principle.

#### **2.4. Early Career Scientist Prize (ECSP 2026)**

The call for nominations for the next ECSP opens on November 1, 2025, with the deadline on February 1, 2026, and award decisions announced by May 31, 2026. Transition to a DESY-based application platform is under review. Presentation of the awardees will occur during ICHEP 2026.

### **3. Challenges and Outlook**

C11 members recognize the importance of community building, outreach, and collaboration to strengthen IUPAP's impact and visibility. The commission is committed to encouraging international collaboration in particle and field physics; coordinating conferences and ensuring inclusivity and free participation; and supporting awards, publications, and cross-commission cooperation. Important immediate next steps are: finalize ICFA status; launch ECSP announcements; strengthen WG14 participation in IUPAP; and expand community communication.

Members are also encouraged to bring new ideas for rejuvenating the Union and expanding engagement within and beyond academia. The commission members are committed and willing to get actively involved in upcoming initiatives.