

IUPAP Working Group WG-14 – Accelerator Science ***Particle Accelerators for Science and Society***

Report to the IUPAP Council & Commission Chairs meeting **September 18, 2026**

IUPAP Working Group 14 (WG14), Particle Accelerators for Science and Society, continued during 2026 to strengthen international cooperation in accelerator science and promote the broad scientific and societal impact of accelerator technologies. The activities increasingly aligned with discussions concerning the evolution of IUPAP WG14 Accelerator Science, particularly in the areas of international knowledge exchange, accelerator applications, sustainability, talent development, and communication.

Throughout the year, WG14 expanded its engagement with accelerator laboratories, neutron and photon facilities, universities, industry, and international organizations. Activities focused on strengthening collaboration across accelerator communities and increasing visibility of accelerator science as an enabling technology supporting research, healthcare, industry, energy, environment, and innovation.

Meetings during the reporting period included sessions held on 30 September, 9 December, 17 February, 20 May, and 30 June. The 25th WG14 meeting was organized in connection with IPAC2026 on 20 May 2026, with both in-person and online participation. <https://indico.global/category/617/>

1 International Engagement: IPAC2026 and IAEA Accelerator Conference

A major focus of WG14 activities during 2026 was participation in two important international events: the **International Particle Accelerator Conference IPAC2026** in Deauville, France (w/ [IUPAP Contribution](#)) [1], and the International Atomic Energy Agency (IAEA) **2nd International Conference on Accelerators for Research and Innovation (AccConf2026)** [2].

At IPAC2026, WG14 organized its 25th WG14 meeting together with the first IUPAP-WG14 Hackathonino. The discussions focused on international coordination in accelerator science, collaboration with neutron and photon facilities, sustainability and societal applications, student engagement, and future directions for accelerator-science activities within IUPAP. IPAC2026 provided an important platform for strengthening interactions between accelerator laboratories, universities, students, and industry representatives.

WG14 members also actively contributed to the IAEA 2nd International Conference on Accelerators for Research and Innovation (AccConf2026), which highlighted the growing importance of accelerator technologies across a wide range of applications, including medicine and healthcare, isotope production, environmental monitoring, advanced materials, semiconductor industries, agriculture, neutron and photon science, and energy-related research. In collaboration with IUPAP, WG14 selected the best posters and **awarded four prizes**, including a prize recognising community development in Indonesia.

The conference further reinforced the importance of international collaboration, sustainable infrastructure development, workforce training, and broader access to accelerator technologies. These discussions closely aligned with the proposed scope for the evolution of IUPAP WG14 Accelerator Science, particularly in the areas of knowledge exchange, the promotion of

accelerator applications, sustainability and alignment with the UN Sustainable Development Goals (SDGs), talent development, resource sharing, and communication and outreach activities.

Participation in both conferences significantly strengthened WG14 visibility within the international accelerator community and reinforced links with organizations including the IAEA, accelerator laboratories, and large-scale research infrastructures.

2 UPAP-WG14 Hackathonino at IPAC2026

One of the major WG14 achievements in 2026 was the organization of the first [Hackathonino \(IUPAP-WG14\)](#) during IPAC2026 [3].

The Hackathonino brought together approximately 65 students working in multidisciplinary teams supported by mentors from laboratories, scattering facilities, universities, and industry. The challenges, prepared jointly by WG14 members and partner laboratories, addressed topics related to accelerator technologies and data analysis, AI and medical applications, neutron science, sustainability, simulations, and diagnostics. Over three days, participants developed solutions while interacting with industrial exhibitors and accelerator experts at IPAC2026.

At the conclusion of the event, the teams presented their results to a panel of experts from academia, research laboratories, and industry. IUPAP-WG14 **awarded three prizes** recognising the most innovative and impactful solutions presented by the student teams.

The Hackathonino demonstrated the value of collaborative, hands-on training that combines accelerator science, engineering, computing, and societal applications. WG14 considers this initiative strongly aligned with its objectives in talent development, knowledge exchange, and the promotion of accelerator applications.

WG14 also engaged **with IUPAP Standing Committee on Physics Outside Academia, and the Standing Committee on Physics Outside Academia** to promote the event and strengthen its visibility across the wider IUPAP community.

3 Accelerator Engagement Ambassadors Initiative

WG14 continued the development of the [Accelerator Engagement Ambassadors Initiative](#) during 2026. The initiative aims to strengthen communication within the accelerator community while supporting participation by students and early-career scientists. The initiative promotes connections between universities, laboratories, and international research infrastructures while encouraging broader participation from regions with limited access to accelerator-science facilities and training opportunities. The initiative contributes directly to WG14 objectives related to talent development and communication.

Out of twenty-two applications, we selected six ambassadors were selected based on their project proposals relating to topics from Accelerators for Sustainability, Accelerators for Health, Accelerators of the Future, and Accelerators for Peace, all connected through the overarching message, *Particle Accelerators: Transforming Science and Society*. They were awarded seed funding for their projects. The ambassadors include:

- **Dr Hannah Wakeling** of Oxford University and The John Adams Institute. Their work encompasses sustainable accelerator physics. They have developed a presentation on the impact of sustainability on accelerator physics, including its past, present and future within the field. They have recorded a 20-minute audiovisual version of this presentation, with the aim of releasing a high-quality (post-edited) version by this October. They have also presented this work to 50 schoolchildren, with several other school visits scheduled across the UK in

September and October. They have also designed multiple infographics on the history of accelerator sustainability and are in the process of designing other resources related to this.

- **Dr Sanae Samsam** of Istituto Nazionale di Fisica Nucleare (INFN) and the African School of Physics. Her work has largely been involved in helping promote accelerator physics and physics as a whole across the African continent. She is actively involved in helping to develop resources and academic training for Africa's first light source that is to be built in Morocco. This includes training the next generation of accelerator physicists to work at the future institute. She has developed resources explaining accelerator science concepts in both French and English and has worked alongside Christine Charles to bring this work to African schools and universities.

- **Annabella Zamora** of The University of Lausanne is undertaking a PhD in sociology and is looking at the sociological ramifications of accelerators. In particular, she is developing a podcast series called "Behind the Beamlines", which looks at the everyday people involved in accelerator physics, such as doctors and engineers, that are typically overlooked within this sphere. She has recorded three episodes so far and is in the process of editing them for an October release.

- **Jade Fischer and Olivia Masella** of Victoria University and British Columbia Cancer. They have developed, produced and ran a one-day interactive workshop for children aged 8 – 14, called "Particles That Heal". The aim of their workshop was to show that radiation can be used for good and has significant impact in areas of cancer research and cancer treatment. They ran four individual stations within this workshop – including CT, beam-shaping, radioactive tracer implantation and electron gun dynamics. The workshop saw 50+ children involved and was a great success. The two ambassadors are currently working on writing up a report about the activities and impact and designing a "cheat sheet" to help other institutions run a similar day by providing resources and insight. They worked alongside 12 volunteers, and so also helped engage multiple academics in active science communication. Their report will also highlight the impact of the one-day workshop on the academic volunteers.

- **Maria Rey-Barrera** of The Paul Scherrer Institute has been developing a multi-lingual social media campaign for promoting accelerator physics, and STEM in general, within the Latin American community, with an onus on promoting Latin American women in physics. Her work has had considerable success, with her TikTok having 10.2k followers, and her Instagram having 14.3k followers. She has produced multiple short-form videos, with several of them accumulating 1M+ views. She is currently working on a long-form video explainer for accelerators, with the aim of posting it on YouTube. She has also interviewed several Latin American women within the field, with the aim of posting these interviews in both long-form and short-form.

4 Communication platform initiatives

Since 2015, IUPAP WG14 has maintained a dedicated webpage, which was successfully migrated from Drupal to WordPress in March 2026, <https://iupap-wg14.web.cern.ch/>. The website serves as a dynamic repository highlighting the diverse communication tools and resources developed by WG14 members, with a particular focus on collecting and sharing educational materials and platforms provided by the participating organisations.

A second communication platform is the new **LinkedIn page, "IUPAP Accelerator Science Communication"**, created as part of the Ambassador Initiative <https://www.linkedin.com/company/111529219/admin/page-posts/published/>. The page is maintained by the University of Melbourne team and aims to collect initiatives and highlight activities related to particle accelerators worldwide.

A third communication initiative is the production of a series of short animated videos, approximately 4-5 minutes in length, highlighting the role of accelerators in energy and environmental applications. The videos describe processes for capturing small toxic gas molecules from the air and converting them into valuable chemicals with potential applications in agriculture, energy, and biomass. Accelerators are also presented as valuable tools for characterising earth-abundant solid-state heterogeneous catalysts, such as spinel and perovskite oxides, contributing to their rational design and the improvement of their properties. In addition, accelerators are presented as unique and powerful light sources that enable an atomistic-level understanding of the mechanisms underlying the chemical reactions involved in these catalytic processes and the conversion of toxic gases.

In collaboration with WG21, *Physics for Climate Action and Sustainable Development*, WG14 supports IUPAP and UNESCO in advancing the [IUPAP-UNESCO International Colloquia on Physics for Society](#), with a particular focus on initiatives related to the International Year of Quantum Science and Technology (IYQ) and the International Decade of Sciences for Sustainable Development.

5 [International Collaboration and Knowledge Exchange](#)

WG14 continued to strengthen its connections with major accelerator facilities, neutron infrastructures, international organizations, professional societies, and IUPAP commissions.

Particular attention was given to potential synergies **with the new *Standing Committee under Commission on Major Neutron Research Facilities***, including developments in accelerator-based neutron sources. This reflects the growing importance of accelerator technologies for neutron scattering science, materials research, and related applications, and highlights opportunities for closer collaboration between the accelerator and neutron science communities.

WG14 also continued discussions **with IUPAP Commissions C11 (*Particles and Fields*) and C12 (*Nuclear Physics*)** concerning possible future structures for accelerator-science coordination within IUPAP. These discussions are motivated by the growing interdisciplinary role of accelerator science across particle physics, nuclear physics, photon science, neutron science, medicine, industry, and energy-related research.

The **group promoted conferences, workshops, accelerator schools, and professional training activities** as effective mechanisms for **international knowledge exchange**. These efforts contribute to the broader objective of strengthening collaboration, facilitating the exchange of expertise, and promoting the sharing of ideas, equipment, and personnel among laboratories worldwide. A notable example of such an exchange took place during the 9th African School of Fundamental Physics and Applications (ASP2026) in Kenya, in collaboration with one of the selected Ambassadors [4]. The school brought together more than 67 students and 100 teachers, while reaching approximately 2,200 learners through outreach activities focused on the role, applications, and societal impact of particle accelerators [5][6]. The initiative also fostered new collaborations and projects, including competitions designed to engage high-school students and encourage their interest in accelerator science and related fields.

The activities of 2026 highlighted the growing need for stronger international coordination mechanisms for accelerator science within IUPAP. WG14 identified several priorities for

future development, including strengthening international knowledge exchange, expanding collaboration between laboratories and universities, supporting sustainable accelerator development, improving education and training opportunities, promoting accelerator applications that serve society, and expanding communication and outreach activities.

WG14 also continued discussions on the possible evolution of IUPAP WG14 Accelerator Science into a broader framework capable of supporting the evolving scientific, technological, educational, and societal dimensions of accelerator research worldwide.

6 Conclusion

The year 2026 marked an important step in the evolution of IUPAP WG14, with the implementation of new activities and strengthened engagement across the IUPAP community and its diverse units. Through active participation in IPAC2026 and the IAEA Accelerator Conference, the organization of the first WG14 Hackathon, and the continued development of outreach and Ambassador activities, WG14 further strengthened its role as an international platform for accelerator science and its applications. These initiatives fostered knowledge exchange, collaboration, and engagement across the global accelerator community, while reinforcing WG14's contribution to the broader mission and objectives of IUPAP..

WG14's activities during 2026 demonstrated strong alignment with IUPAP's objectives and reflected the continued evolution and growing impact of the group, particularly in the following areas:

- global knowledge exchange;
- promotion of accelerator science and its applications;
- sustainability and alignment with the Sustainable Development Goals (SDGs);
- international collaboration and networking;
- talent development and capacity building;
- communication, outreach, and engagement.

Together, these activities provide a strong foundation for expanding international cooperation and strengthening the role of accelerator science in addressing global challenges, advancing research, and delivering benefits to society.

7 References

- [1] ["IUPAP-WG14 on Accelerator Science at IPAC2026"](#), International Particle Accelerator Conference (IPAC2026), Deauville, May 20, 2026.
- [2] ["Early AI in Accelerator Technology and the Scattering Community: A First Step in Broader Innovation". Side Event 07: Accelerator Technology Innovations and AI. 2nd Inter. Acc. Conf. on Research and Innovations, IAEA, Vienne, 24 June 2026.](#)
- [3] ["From Light Sources to Innovation Ecosystems: The First IUPAP Hackathonino at IPAC2026"](#), published in [Lightsources.org.](#), 10 July 2026
- [4] ["Education and Training in Particle Accelerator Science and Technology"](#), CEMASTE, [Teacher Program ASP2026](#), 9 July, 2026
- [5] ["IUPAP / APS: Community development initiatives"](#), [ASP2026](#), 7 July, 2026
- [6] ["Real Physics: Particle Accelerators "](#), and ["Cases Studies"](#) presented in 4 different high-schools (>2200 learners), [Outreach Program ASP2026](#), 13-16 July, 2026