



IUPAP WG14 on Accelerator Science: Activities and Plans

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IUPAP – WG14

- Created in 2015 following mandate by IUPAP at its 28th General Assembly
- Recognizing **Accelerator Science**:
 - as a distinct discipline in its own right
 - as contributor to progress of many branches of science (material, nuclear, elementary particle sciences) as well as of medical and environmental applications.

Mandate

- Promote the exchange of information and views among the members of the international scientific community in the field of Accelerator Science including, but not limited to, the following:
 - **Education and training** in Accelerator Physics and Technology
 - The **theory and experiments** concerned with the nature and properties of particle accelerators and beam physics
 - The improvement of **international communication** in Accelerator Science through the sponsorship of professional meetings
 - The future of accelerator facilities for various fields that benefit science and society
 - The **industrial, medical, energy production and environmental applications** of relevant accelerator technologies

WG14 and ICFA

- Mandate and mission of WG1 and WG14:
 - ICFA has a focused mandate on **very high energy accelerators** for particle physics, including political aspects.
 - WG14 mandate is the **advancement of accelerator science and education** in general, with a particular focus on **non-HEP scientific and societal applications of accelerators**. WG14 mandate includes the support of the International Particle Accelerator Conference.
- Concrete steps to exchange information, participate in each other's activities, launch joint initiatives:
 - The ICFA Chair and the Chairs of the ICFA Beam Dynamics and Sustainable Accelerators and Colliders Panels are Associate Members of WG14 with the aim of **working in synergy and without duplication**.

Status

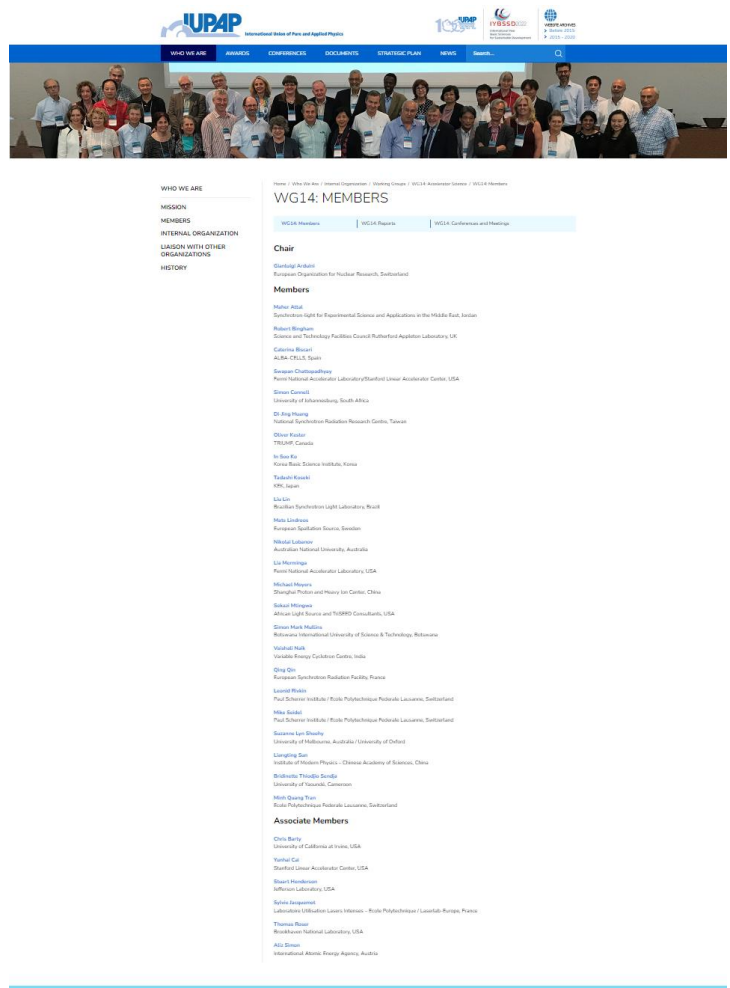
- Four face-to-face meetings so far
 - 9/5/2016 at IPAC16 in Busan, Korea (@ IPAC16)
 - 15/5/2017 at IPAC17 in Copenhagen, Denmark (@ IPAC17)
 - 20/11/2017 at PSI, Villigen, Switzerland
 - 30/4/2018 at IPAC'18, Vancouver (@ IPAC18)
- Hiatus as a consequence of the pandemics and limited availability of the previous Working Group Chair
- Restarted activities in September 2021



Membership

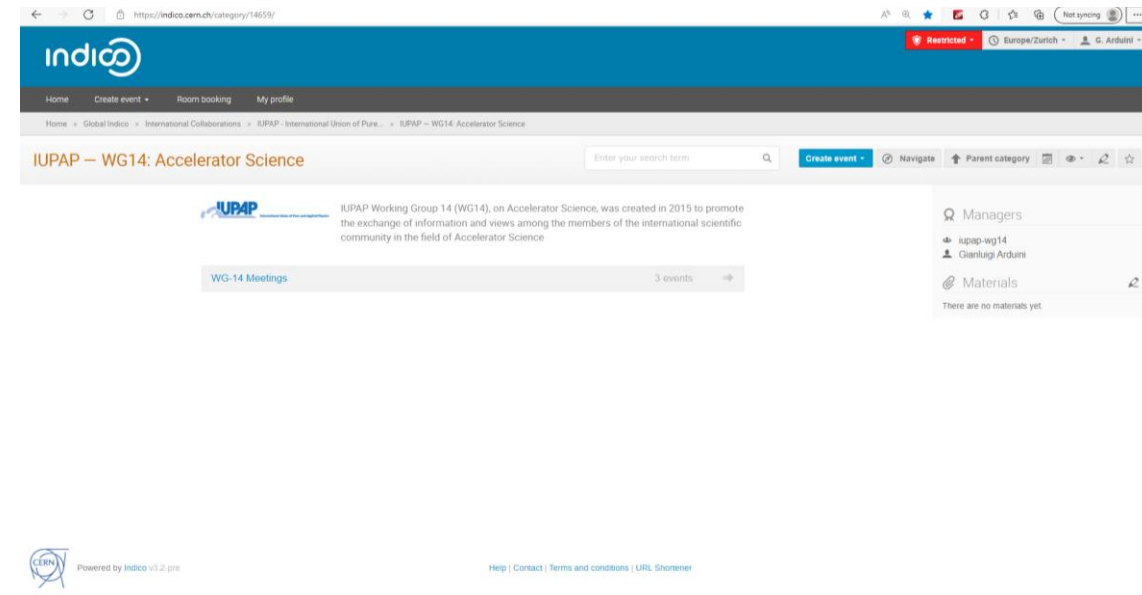
- Updated representation taking into account availability and change of functions
- **Effort to improve diversity** (geographical, gender, expertise)
 - Africa: 1 → 3
 - Americas: 7 → 9
 - Asia: 4 → 6
 - Europe: 9 → 10
 - Middle East: 1 → 1
 - Oceania: 1 → 2
- Now: 31 representatives (25 Members and 6 Associate Members)

- Female: 3 → 8
- Male: 20 → 23



Modus Operandi

- Organize ourselves in teams (with a lead) to develop on some themes/activities
- Meetings every ~3 months (4 meetings since September 2021):
 - Review progress on 1-2 theme/activity
 - Round table covering activities in various regions (time permitting)
 - Meetings minutes and slides available on IUPAP Indico (<https://indico.cern.ch/category/14659/>)
 - Virtual meetings and plan for an “in-person” meeting at the next IPAC (IPAC23)



Education

- Education in accelerator science is considered one of the main themes of WG14.
- Engaging with representatives of the main international accelerator schools: CAS, USPAS, JUAS, etc.
- Increase the visibility of the existing initiatives and particularly of the existing digital material (MOOCs, school proceedings, ...)
- Reach out to less developed countries

Interactions with IAEA

- IAEA is quite active in organizing conferences on the applications of accelerators and, in particular, on the uses of low energy accelerators (e.g. electrostatic accelerators) for ion beam analysis applied to archaeometry, forensics, geology, etc.
- **Areas of collaboration have been identified** and they include
 - Common Workshops, in particular in the domain of low energy accelerators
 - Documentation and communication on the possible uses of accelerators
 - Training through the dissemination of the available resources and/or contact with relevant universities for possible integration in University Curricula

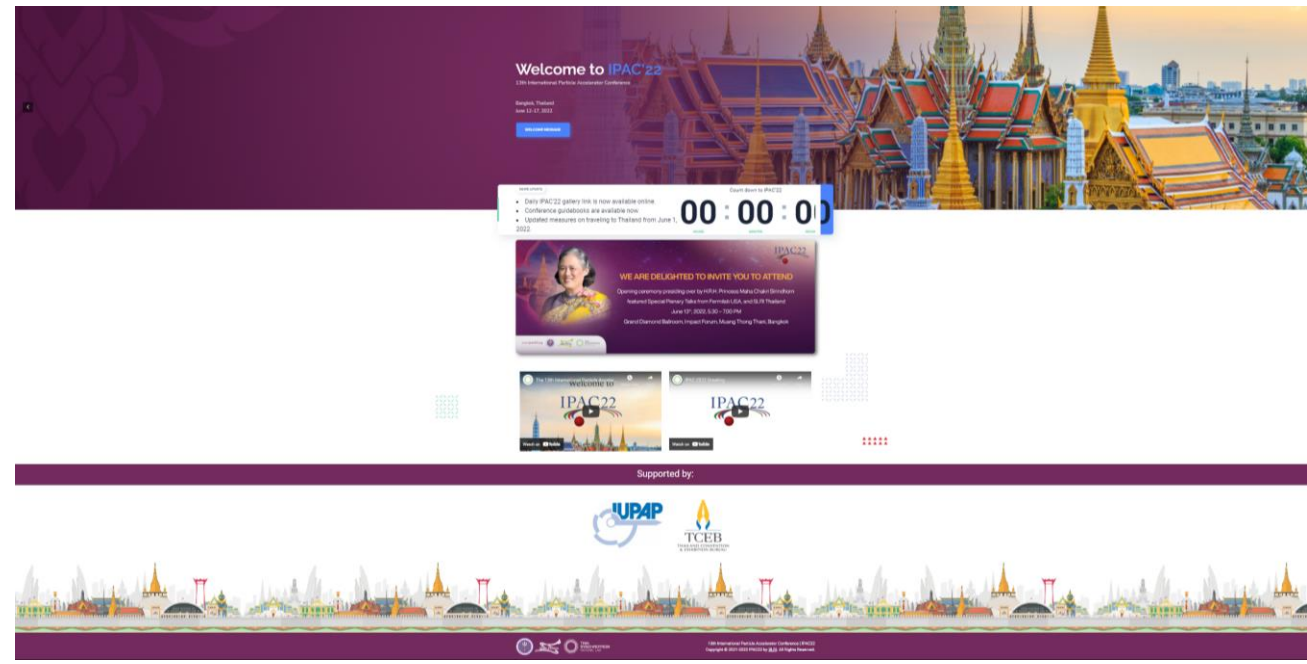
IPAC as IUPAP WG14 conference

- IPAC is the main Accelerator Science conference world-wide.
- There is a close connection between IPAC and WG14
- Several IPAC conferences have been endorsed/sponsored by IUPAP with support of C11 (thank you!!)
- IPAC should become an IUPAP-sponsored conference on a permanent basis



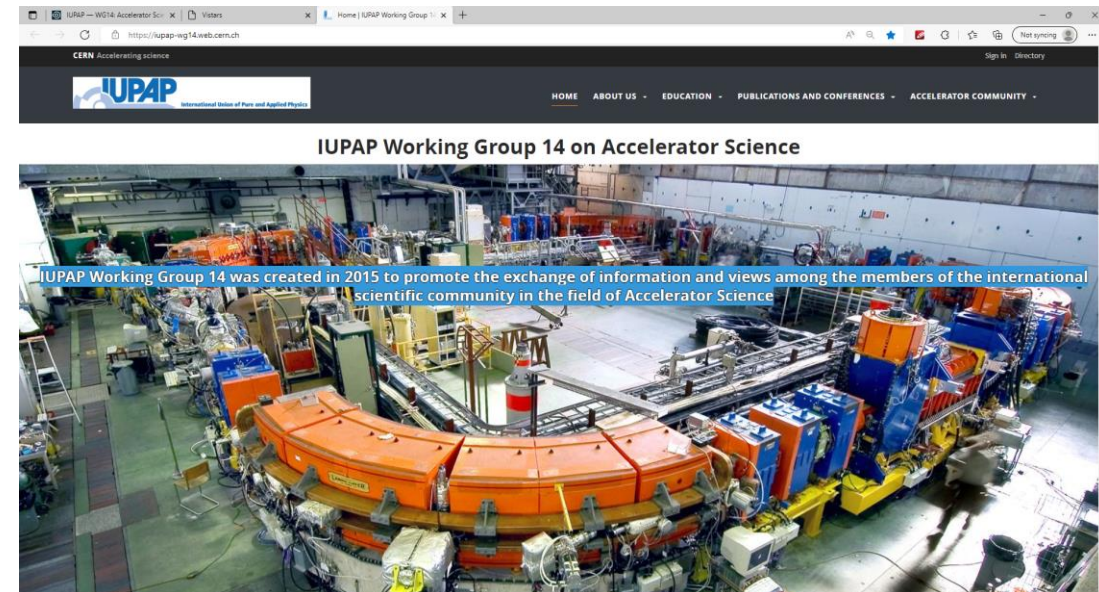
IPAC22

- First IPAC in person after the pandemics (but also with remote presentations):
 - ~750 participants (> 20% female).
 - Close to 1000 papers (112 peer-reviewed)
 - 88 talks (28% female speakers)
 - 101 Student grants (for many students this was a first such event)
- IPAC22 has been endorsed by IUPAP
- IPAC23 has asked for support to IUPAP (under C11)



Communication

- **Web site under construction**, it will be linked to the IUPAP WG14 page:
- Links to:
 - CAS/USPAS/JUAS/ICTP
 - Web Courses/MOOCs (Massive Open On-line Course) on Accelerator physics
 - IPAC Conferences Web Pages and Proceedings
 - Accelerator prizes/theses in accelerator science
 - List of worldwide accelerator facilities
 - Post openings?
 - Newsletters?
- Considering the use of social media



Other main lines of activity in the medium term

- Promotion of applications of accelerators (with a particular attention to less developed countries)
 - Synergy/collaboration with IAEA for low energy machines
- Dissemination of Accelerator Science and Cutting-Edge Technologies underpinning accelerators with particular emphasis on sustainability
 - Synergy/Collaboration with ICFA Panel on sustainable Accelerators and Colliders (Mike Seidel/Thomas Roser)
- Strengthening visibility of accelerator research through revision of publication policies & habits

Summary and Outlook

- Accelerator Science contributes to the progress of many scientific domains and offers several applications (medical, environmental) towards a sustainable development
- WG14 has reinvigorated its team and it is strengthening its activities, working in synergy with the partners in the field, inside and outside IUPAP
- **Working with the goal of becoming a IUPAP Commission**
- Thank you for the continued support from C11!