

Astroparticle Physics International Forum (APIF)

Overview for ApPIC
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Astroparticle Physics Science

- Identify the constituent of the dark matter that holds structures in the Universe together
- Unravel the mystery of cosmic acceleration and dark energy
- Understand the properties of the three neutrino species, which have shaped the Universe (from creating the ordinary matter to producing the chemical elements)
- Determine the lifetime of proton (!!)
- Study the high-energy messengers that carry information about the extreme Universe (gamma rays, neutrinos, UHE CRs and gravity waves)

Special nature of AP Science

- Highly interdisciplinary (particle-, nuclear-, astro-, gravitational-, and physics, both theory and experiment) and global in nature
- Funding crosses traditional disciplinary (and country) boundaries
- Special facilities and instruments (highly sensitive detectors, underground labs, very large detectors,...)
- Range of facilities from mid-scale (current 10 to 100 kg DM detectors) to mega-scale (Megatonne detectors for proton decay and neutrinos)
- National, regional and global facilities are essential

Brief history of APIF

- Began 3 years ago at the explicit recommendation of the GSF WG on Astroparticle Physics led by Michel Spiro
- Six meetings (2/year) to date
 - OECD HQs in Paris (2); London; SNO Underground Lab in Sudbury, CA (lab visit); Virgo GW Observatory in Pisa, IT (lab visit); and Toyama, Japan (Kamioka, J-PARC visits) – 28/29 Oct 2013
- 14 countries regularly involved
 - Canada, China, France, Germany, Italy, Japan, Korea, Netherlands, Poland, Spain, Sweden, Switzerland, UK, and US (also Argentina, Belgium, India, Israel, Russia, and EU observer)
- Countries are represented by senior science program managers from funding agencies (or their designees) and not members of the science community
- Regular reports (agencies and summaries) to the GSF
- Liaising activities: ASPERA, APEC, and ApPIC (IUPAP science community counterpart)

APIF goals and activities

1. Exchange of information about science budgets, funding, science priorities and practices (e.g., OA and open data)
2. Regular discussion/updates on the advances in AP science (some by invited experts)
3. Discussing and sharing of best practices in the practical aspects of managing and establishing regional and global facilities, data sharing, ...
4. Discussion of collaboration and coordination (rather than duplication) of facilities, e.g., CTA, R&D for dark matter detectors, ...