

Annual Report from Working Group 10 to IUPAP September 2014

ApPIC Astroparticle Physics International Committee Activity Overview
Michel Spiro, Chair
Pierre Binetruy, Secretary

The [Astroparticle Physics International Committee](http://iupap.org/working-groups/wg10-astroparticle-physics-international-committee-appic/) (ApPIC), <http://iupap.org/working-groups/wg10-astroparticle-physics-international-committee-appic/>

was established by the 2011 General Assembly. In October 2012 the Executive Council authorised that members be appointed, and that the mandate be drawn up in consultation with the first members of the Committee. The current members are listed in the Appendix.

Charge to Working Group

- Review on a regular basis the scientific status of the field of Astroparticle Physics;
- Engage in a continuous dialogue with “The Astroparticle Physics International Forum (APIF)” of the Global Science Forum (GSF)² and to give scientific advice to APIF, whose members are appointed by funding agencies;
- Comment on and liaise with similar national and international organs on assessment and road-mapping activities, as the need may arise, such as for promoting the global coherence of plans, priorities and projects, in Astroparticle Physics.

The ApPIC International Committee met for the first time on May 9th, 2014, in Paris in the Astroparticle and Cosmology (APC) laboratory.

Two main items were on the agenda :

- Data Policy in Astro-particle Physics
- High Energy Multi-Messenger Astronomy

The intention was to deliver a message to the Funding Agencies through APIF (Astroparticle International Forum of Funding Agencies) which met soon after on May 9th. The Chair of APIF, Michael Turner, participated in part of the meeting and made a presentation about APIF. The chair of ApPIC was invited to the APIF meeting to report on the conclusions of the ApPic meeting. The messages were the following:

- Example of Data Policy in Gravitational Wave Physics
 - Ground-based gravitational antennas have adopted a bottoms-up approach, with a science-driven data policy
 - LISA (space gravitational antenna) follows the ESA space agency data policy (public funding implies open data policy, just like in the US)
 - General considerations: avoid false discoveries, give proper credit by quoting properly the used data release (collaboration), resources have to be planned from the very beginning with funding agencies
- General Data Policy Structure (5 levels)
 - Data validation (Collaboration)
 - First data releases for joint analyses (Collaborations)
 - . For combinations and mutual cross-checks
 - . For complementary approaches
 - Open trigger on or off line (Collaborations)
 - Data in open access for the community (prepare the community, virtual observatory model)

and help-desk?)

- Data preservation and legacy

- Ideas for general implementation

- ApPIC could trigger a session on this topic in the next large international conference on Astroparticle Physics, TAUP 2015

- This would be a discussion with the community on guiding rules for data policy in Astroparticle Physics

- ApPIC would come back to APIF and provide an interface between APIF and the community (one of the roles of ApPIC)

Messages to the Funding Agencies on High Energy Multi Messenger Astronomy

- High Energy and Ultra High Energy Astronomy :

- Gamma ray astronomy paves the way, providing a reference map of the high energy sky

- Strong evidence for extraterrestrial TeV to PeV neutrinos, but origin is not yet known.

- Cut-off of the cosmic ray high energy spectrum seen, but composition near the cut-off is controversial and origin of the cut-off still debated.

- Gravitational waves will enter the game soon and open new questions (this is already the case with BICEP2)

- Conclusions on High Energy Multi Messenger Astronomy :

- Many recent achievements and open questions

- Huge discovery potential

- Multi messenger approach crucial, including gravitational waves and conventional astronomy (open data policy, virtual observatories including these new messengers will help)

- We could also trigger a discussion on this subject at TAUP 2015, looking at the global coherence and at priorities

Plans for future meetings

The next meeting will very likely be a joint meeting with the ICFA neutrino subpanel (Working Group 1) to discuss the plans for neutrino physics (accelerator based and non-accelerator based). This should happen in early 2015.

We plan to hold a meeting at the TAUP Conference in September 2015 (approved by the organizers) to trigger discussions with the community on Data Policy and global coherence and priorities in high and ultrahigh energy astronomy (follow-up of the May 9th, 2014 meeting).

We also plan to discuss Cosmology, Dark Matter and Dark Energy in a future meeting.

Appendix: **MEMBERSHIP**

Chair: Michel Spiro, France
Secretary: Pierre Binetruy, France
Roger Blandford, USA
Zhen Cao, China
Eugenio Coccia, Italy
Don Geesaman, USA
Kunio Inoue, Japan
Naba Mondal, India
Angela Olinto, USA
Natalie Roe, USA
Sheila Rowan, GB
Valery Rubakov, Russia
Bernard Sadoulet, USA
Subir Sarkar, GB/Denmark
Christian Spiering, Germany
Yoichiro Suzuki, Japan