Report from Commission C4 Cosmic Rays
by Johannes Knapp

1 Conferences in 2013

The 33nd International Cosmic Ray Conference (ICRC 2013), ttp://www.cbpf.br/~icrc2013/ was held at Rio de Janeiro in 2-9 July 2013.

With more than 750 attendants from 54 countries, with contributions on solar activity and space weather and with many young excited scientists presenting their work we easily fulfilled the IUPAP

Mission: "To assist in the worldwide development of physics, to foster international cooperation in physics, and to help in the application of physics toward solving problems of concern to humanity."

Nine plenary review talks, 20 plenary highlight talks 360 oral presentations, and about 820 posters have been presented and were summarised in 7 rapporteur talks. The proceedings of the ICRC 2013 with 979 contributions is online via INDICO website http://143.107.180.38/indico/contributionListDisplay.py?confId=0

For the first time the conference had a program committee of experts that was largely independent of the local organising committee and a Dark Matter branch in parallel to the four traditional branches cosmic rays, solar and heliospheric physics, gamma rays, neutrinos. The resulting program was greatly appreciated and the commission decided to define the "Rio Template" to be followed at least for the next two conferences.

Scientific highlights of the last year were:

- high-energy (PeV) neutrino events seen with IceCube which are widely believed to be the first astrophysical neutrinos
- The Fermi gamma-ray satellite discovered: two big bubbles of gamma ray emission above and below the galactic disk (Fermi bubbles), a possible 130 GeV line emission from the galactic centre, and variability and strong flaring from the Crab nebula
- the new 28-m Cherenkov telescope (HESS II) is operational and the Cherenkov Telescope Array (CTA) is rapidly coming closer to realisation
- Voyager 1 left the Solar system.
- AMS has released first data on cosmic ray spectra
- new LHC data constrain air shower models, and cosmic ray shower models fit better the LHC forward data than the particle physics models.

- The following prizes were presented during the inaugural session of the ICRC 2013:
- O'Ceallaigh medal to Edward C Stone (Caltech; Voyager),
- Yodh prize to Motohiko Nagano (Japan; AGASA),
- IUPAP-TIFR Homi Bhabha medal and prize to Heinz Völk (Germany; Gamma ray theory)
- Duggal award to Rolf Bühler (Germany, Fermi) and the
- IUPAP Young Scientist awards to Aya Ishihara (Japan; IceCube) and Daniel Mazin (Spain; MAGIC).

During the C4 meetings held at Rio during the ICRC 2013, it was decided to organize the 34rd ICRC 2015 at the Hague, Netherlands, in 30 July - 6 Aug 2015. Also, the Commission gave its approval for organizing the 35th ICRC 2017 in Busan, South Korea.

Further conferences in 2013 with IUPAP support have been: TAUP 2013: International Conference on Topics in Astroparticle and Underground Physics, 8-13 September 2013 in Asilomar, California, USA. The Proceedings for TAUP2013 will be published by Elsevier B. V. as a Virtual Special Issue, online and open access.

2 Conferences in 2014

Conferences in astroparticle physics who have applied for IUPAP support for 2014 are:

- Amsterdark 2014, Amsderdam: TeV particles and Dark Matter
- ISVHECRI 2014, CERN: Int. Symposium on Very High Energy Cosmic Ray Interactions
- Cospar 2014, Moscow: Cospar Scientific Assembly

While the latter two of them applied only past the deadline, the C4 Commission still supports their applications, as their topic is relevant to C4 and the both series traditionally received some support from IUPAP.

3 Renaming the C4 Commission from "Cosmic Rays" to "Astroparticle Physics"

The commission C4 "Cosmic Rays" is one of the oldest, founded in 1947.
Since then particle physics has split off and become a separate commission,
and the area under this commission has widened to include solar and heliospheric physics, gamma ray astronomy, neutrino astronomy and dark matter.

A first proposal to change the name of the commission to "Astroparticle Physics" has been discussed at a national Meeting in 2010 and forwarded to the IUPAP GA in 2011. The GA referred it to the C4 chair to consult with the commission and the wider community.

The C4 commission and many senior scientists found the name change appropriate and timely to properly reflect the breadth of activities gathered under the C4 umbrella. In many countries the name "Astroparticle Physics" has been established for this area. IUPAP is in the process of establishing the "Astroparticle Physics International Committee (APPIC)" to advice the Global Science Forum of the OECD and the "Astroparticle Physic International Forum (APIF)" in matters relating to big international projects in the area largely covered by C4. Thus, "Astroparticle Physics" would be the best name for the Commission C4.

At this summer's International Cosmic Ray Conference we have extensively discussed the issue in the commission and formally polled the commission members and the ICRC attendants. The result was a 76.5% support for the name change among the commission members and 60% support among the ICRC participants who returned the poll. In the view of the C4 officers this is a clear enough majority to apply formally to IUPAP for a name change of the commission C4.

Note:
we suggest a different name for C4 that describes better the activities currently under the umbrella of C4. We do not suggest to redefine the topics of C4. The name of our big bi-annual international conference will remain “International Cosmic Ray Conference” but with the subtitle "The Astroparticle Physics Conference".

The change of the Mandate to go along with the name change is minimal: the old mandate is:

C4 Mandate
To promote the exchange of information and views among the members of the international scientific community in the general field of Cosmic Ray Physics including:

- the nature and characteristics of the electromagnetic,particle and other radiation present in the cosmos;

- the theory and models concerning the origin of this radiation;
- non-accelerator high energy physics;
- the specialized technologies necessary in the field and their application.

the new mandate is proposed to be:
C4 Mandate

- To promote the exchange of information and views among the members of the international scientific community in the general field of **Astroparticle** Physics including: the nature and characteristics of the electromagnetic, particle and other radiation, **from the lowest to the highest energies, in the heliosphere, the galaxy and the universe**;
- the theory and models concerning the origin of this radiation;
- non-accelerator high energy physics;
- the specialized technologies necessary in the field and their application.

Also the Chairs of C11 (Particles and Fields), C12 (Nuclear Physics) and C19 Astrophysics) have been asked for their views. Hiroaki Aihara (Chair C11) had no concerns about the name change. Thanu Padmanabhan (Chair C19) worried whether the chairs of C11 and C12 would agree, Hideyuki Sakai (Chair C12) personally had no objections, but reported some concerns of his commission members: overlap with C19?, C19 to absorb C4?, Redefine the mandate to avoid overlap with C19? So, interestingly, C19 members did not express concerns about the overlap with C19, and C12 members did not worry about C12.

The Commission Chair meeting requires some discussion of this issue.