

Report to the IUPAP GA 2017

Commission C4 – Astroparticle Physics

Reporting period: October 2014 – September 2017

1. Membership

Karl-Heinz Kampert (chair)	Germany (2008, 2011, 2014)
Sunil K Gupta (co-chair)	India (2011, 2014)
Adri Burger (secretary)	South Africa (2011, 2014)
Pierre Binétruy †	France (2014, passed away April 2017)
Pasquale Blasi	Italy (2014)
Zhen Cao	China (2014)
Joakim Edsjö	Sweden (2014)
Jörg Hörandel	Netherlands (2011, 2014)
Michael Kachelriess	Norway (2014)
Masaki Mori	Japan (2011, 2014)
Ryan Nichol	UK (2014)
Michal Ostrowski	Poland (2011, 2014)
Mikhail Panasyuk	Russia (2014)
Eun-Suk Seo	USA (2011, 2014)
Steve Barwick (associated)	USA
Ilya Usoskin (associated)	Finland
Albert de Roeck (associated)	Belgium
Laura Baudis (associated)	Switzerland
Elisabete de Gouveia Dal Pino (IAU inter-union)	Brazil
Mark Lester (SCOSTEP inter-union)	UK

2. The first three years with the new commission name

At the last GA (Singapore 2014) the name of C4 was changed from “Cosmic Rays” to a more inclusive “Astroparticle Physics”. This had led to some discussion at the GA, but C4 is happy to report that this more inclusive name was not only widely accepted but is also being seen as a very positive move. Since the C4 community keeps growing and so does the main Conference, the ICRC (International Cosmic Ray Conference). On purpose, the brand “ICRC” was not changed to continue the long tradition of this conference series that started way back in 1947. The main branches of the conference, typically attended by more than 1000 participants, are solar and heliospheric physics, cosmic rays, gamma astronomy, neutrinos, and lately also dark matter. The fact that very competitive and attractive bids continue to be received to host future ICRCs is another measure for the importance and visibility of the main conference of C4.

3. C4 Meetings and Awards at ICRCs

For economical reasons, C4 conducts face-to-face meetings every two years during the International Cosmic Ray Conferences, which are attended by most of the members. While being at the ICRC, typically 3 meetings take place. All other meetings are conducted on phone while email traffic served for the rest.

Two ICRCs were conducted in the reporting period:

- **ICRC 2015** held in The Hague (Netherlands) from 30/7/2015 to 6/8/2015. The conference was attended by more than 1000 participants from 58 countries.
- **ICRC 2017** held in Busan (South Korea) from 12/7/2017 to 20/7/2015. The conference was attended by almost 900 participants from 57 countries.

At the opening ceremony of the ICRCs, the following awards are given:

- Two equally ranked **IUPAP Young Scientist Awards**
- **O’Ceallaigh Medal** to a senior scientist
- **IUPAP-TIFR Homi Bhabha Medal and Prize** to a senior scientist

The above prize winners are selected from among nominations sent to the C4 chair. In addition, the

- **Shakti Duggal Award** is given to a young scientist, and the
- **Yodh Prize** to a senior scientist

by independent commissions. It has been recognised that some of the awards target at the same group of potential candidates. This is particularly the case for the O’Ceallaigh Medal and Yodh Prize whose winners are selected by independent commissions. This problem deserves some recognition and a better resolution. Possible solutions for the future have been discussed.

C4 has also created three Best Poster Prizes to be selected during the course of the ICRC. This was done for the first time in Busan 2017 and is intended to give more recognition to the posters. Three Best Poster Award winners were selected and honoured during the closing ceremony with a certificate plus 300 € each taken from the budget of the C4 commission. Interestingly, all three prizes were won by PhD students, two of them were female.

4. C4 Related Conferences

After **ICRC 2015** being conducted in Netherlands and **ICRC 2017** in Busan (Korea), sponsored as Type-A conference, the venue of **ICRC 2019** will be in Madison, USA, assuming no effective immigration ban will be active for scientists at that time. Proposers from Switzerland have kindly agreed to hold Geneva as a back-up option should IUPAP during the C&CC Meeting in 2017 decide to not support conferences hosted in US. Two applications for **ICRC 2021** were submitted to C4 and presented in Busan recently, one from Berlin (Germany) and a second one from Geneva (Switzerland). Both bids were very attractive. The decision to award **ICRC 2021** to Berlin was arrived by consensus in C4. Geneva may be willing apply again for **ICRC 2023**.

Another main conference is the International Conference on Topics in Astroparticle and Underground Physics (TAUP), generally conducted as Type-B conference and receiving financial support from IUPAP. **TAUP 2015** was held at Torino and with 490 participants a new record was set. **TAUP 2017** was held from July 25 to 29, 2017 at Sudbury, Canada.

Following applications for IUPAP sponsorship were received, and were approved:

- COSPAR 2016 (Turkey) was endorsed, but had to be canceled on short notice on safety considerations.
- 25th European Cosmic Ray Symposium 2016, Torino: It was endorsed because of only regional character
- 19th International Symposium on Very High Cosmic Ray Interactions (**ISVHECRI 2016**), Dubna, Russia
- International Conference on the Identification of Dark Matter (**IDM 2016**), Sheffield, UK

Open applications for IUPAP sponsoring was received from:

- 20th International Symposium on Very High Cosmic Ray Interactions (**ISVHECRI**), Nagoya, Japan
- 12th International Conference “Identification of Dark Matter 2018” (**IDM**), Brown Univ. RI, USA
- 8th International Symposium on Very Large Volume Neutrino Telescopes (**VLVNT**), Moscow, Russia
- 42nd **COSPAR** Scientific Assembly, Pasadena, CA, USA.

C4 recommends financial support as Type-B conference for ISVHECRI, IDM, and VLNT and endorsement of COSPAR as Type-C conference.

5. Proceedings of previous ICRCs

Thanks to the continuous efforts of C4 members, digital copies of the proceedings of most previous ICRCs are now available via ADS, see http://ads.harvard.edu/pubs/icrc_status.html with most recent updates at <http://particle.astro.ru.nl/goto.html?icrc/icrc>

By the end of 2017 we expect to have a complete set available on the ADS dating back to 1947. These efforts were received extremely positively by the Astroparticle community, particularly in view of the fact that – except for the most recent past – many important results in the field of cosmic ray physics were printed in

ICRC proceedings only rather than being published in peer-reviewed Journals. Access to these proceedings thus was virtually impossible and worked mostly by personal connections.

6. ApPIC & C4:

The chair of C4 has become a member of ApPIC and is invited to the meetings. Natalie Rowe (USA) has taken over the ApPIC chair from Michael Spiro in 2016. As already discussed at the previous C&CC meeting, the relation between ApPIC and APIF remains unclear: APIF at present does not feel any need for external scientific input from ApPIC and enjoys the privacy it affords for their discussions. No ApPIC meeting was conducted during the last year.

7. New IUPAP / C4 Webpages:

With the support of the IUAP office, the C4 pages are continuously updated and old material is planned to be collected in an archive. This work will continue to improve in particular the collection and accessibility of previous reports and resolutions.

8. IUPAP-Newsletter:

C4 received very positive feedback by the astroparticle community about the IUPAP newsletter and for taking clear position on important political issues. C4 provided the following contributions to the IUPAP Newsletter:

- 12/2015: Presentation of C4 YSA winners
- 03/2016: WG10 (ApPIC) and C4 about open data policy in astroparticle physics;
Report from ICRC2015;
Report from TAUP2015
- 06/2016: Launch of Lomonosov satellite
- 09/2016: Report from IMD2016 conference
- 06/2017: Obituary to Pierre Binétruy
- 09/2017: Presentation of IUPAP YSA winners;
Report of ICRC2017;
Report of launch of ISS-CREAM

Karl-Heinz Kampert
Chair, IUPAP C4 – Astroparticle Physics
September 1, 2017