

IUPAP Commission on Nuclear Physics C12

Report to IUPAP Executive Committee and Commission Chairs September 2025

María José García Borge, Chair of C12

Annual general meeting of C12 held on May 28th, 2025

The general meeting of C12 is held once per year. It is always combined with the annual meeting of IUPAP's Working Group 9 (WG9). The members of WG9 are welcomed as observers to attend the meeting of C12, and vice versa. Both meetings have a common part and a restricted part where the decisions are made. The Chair of WG9, Angela Bracco, reports on WG9 activities to C12, and I report to the WG9 members on C12 activities. This close relation between C12 and WG9 is important for the work of both groups of physicists. This year we celebrated the meeting with a large in-person participation as it took place during the International Conference on Nuclear Physics (INPC), in Daejeon, Korea from 25th to 30th of May 2025. This is the most general and prestigious conference for nuclear physicists, that takes place every third year, the meetings of C12 and WG9 are being held in connection with that conference. The site of INPC is decided by C12 and since long time is being sponsored by IUPAP as category A conference. In 2031 it will have 100 years of the first INPC conference.

This year the annual meeting of C12 that took place at the Daejeon convention Center on May 28th, 2025, see photo at the end of the report. Matters of forefront nuclear science research were briefly addressed at our meeting, in the common meeting we discussed the future of WG9 and I received the unanimous support of all members of C12 to plea for the continuation of WG9 in the framework that IUPAP finds adequate. A large part of the restricted C12 meeting was dedicated to the presentation of the bids for the next INPC conference which site is directly chosen by C12. We took the opportunity to decide to have an in-camera meeting of C12 and WG9 to present the status reports on the large-scale accelerator facilities for nuclear physics around the world and to exchange information on up-grades and planning of new such accelerator facilities. This meeting will take place in April 2026 together with the funding agencies.

Special attention was dedicated to the new initiative of IUPAP-UNESCO: international Colloquia on Physics for Society. In the discussion it was clear that there are many on-going events and sometimes we miss them because we are not reached by the email distribution list which is still the main vehicle of communication in the scientist community.

The major activities of C12 during the past year follow below together with information on the discussions at the meeting in Daejeon and on the decisions that were taken there.

IUPAP Young Scientist Prize in Nuclear Physics

One of the most pleasant activities of C12 is the work dedicated to deciding the winners of the IUPAP Early Career Scientist Prize in Nuclear Physics. It is also one of the more demanding activities involving all members of C12. And it is one of the most important activities. It is a prize that is awarded every third year to three ECR scientists, and the award ceremony takes place at the INPC conferences.

The whole process of finding this year's prize winners was discussed in the previous C12 general meeting on June 22nd, 2024, in Vancouver. The distribution of the announcement took place September 1st and the deadline for submissions was November 1st, 2024. Thanks to the distribution list of the different facilities together with the list of C12 we could reach an ample

part of the nuclear physics community. As the selection process started last year, we agreed that the nominations will be evaluated by the members of C12 of 2024 chaired by Prof Ani Abrahamian. At the deadline on November 1st, 2024, we had 26 nominations plus one auto nomination that was discarded, five of the nominees were women. The nominations covered most fields of nuclear physics: nuclear reactions, nuclear structure, nuclear astrophysics, nuclear instrumentation, hadron physics, QCD matter physics and nuclear applications. The geographical distribution of the nominees was: 5 from Asia, 4 from North America, 16 from Europe, 1 from Australia and 1 from South America.

The evaluation process was done from November to beginning of January, every member of C12 chose their best 5 candidates. The results were very tight, so we had to do two rounds for the selection of the three prize winners in a zoom meeting that took place in January 13th, 2025, one woman and two men were selected and approved by the IUPAP Secretary-General. They worked in China, France, and USA. The following link gives information on the prize winners: <https://iupap.org/who-we-are/internal-organization/commissions/c12-commission-on-nuclear-physics/c12-news/>. The prize ceremony took place at INPC2025 in Daejeon May 31st, 2025. All three winners were invited to give a 20 min talk. These talks were preceded by my presentation of another 20 min dedicated to IUPAP and C12 activities. One of our winners could not make it to Korea due to possible difficulties to go back to USA. The two other winners gave excellent presentations reaffirming our winner choices.

In addition, and as part of a pilot program, Lindsay Downie (publisher of the Frontiers journal) has invited the C12 Early Career Scientist winners, to publish a mini-review—all publishing charges will be waived—in the journal Frontiers in Physics (editor-in-chief Alex Hansen, former IUPAP Vice President and now in charge of the working group on open science). Of course, our three winners were very delighted to accept and the contributions are expected for this Autumn.

Welcome Meeting to the New members of C12

After the IUPAP meeting of January 2025 and considering that more than half of the C12 commission members was renewed in the in-person general assembly in October, I thought that it was worth to introduce the mission and mandate of IUPAP and C12 to the new members of the committee. I organized a meeting on February 17th, 2025, where all members including some of the newly nominated associate members participated. I prepared a presentation of IUPAP mission, mandate, administrative office and communication office. Then I introduced the secretary and vice chair of C12 indicating their field of expertise, a summary of the meeting in January, the process of sponsoring conferences, the call for sponsoring conferences in 2026 and the requisites required., and the result of the selection of the Early Career Scientist winners. In addition, the international decade (2024-2033) of Sciences for Sustainable Development was presented as it is a very important initiative of IUPAP. The information was completed announcing that we are in the international year of Quantum Science and Technology. The funding situation of C12 was revised and we decided to partially sponsor the participation in the INPC 2025 conference of the Early Career Scientist prize winners. The collaboration with WG9 was presented as well as the recently released Report 41, whose printed copies were partially sponsored by C12 funds.

Associate members to other commissions and working groups

C12's commitment to other commissions and working groups was discussed. In the period 2021-2024 we had the following associate members: Azwinndini Muronga, Nelson Mandela University, from C-11 (Particles and Fields), Junichi Yokoyama, President of Asia Pacific Physics Societies, Japan, from C-19 (Astrophysics) and Chia-Liang Cheng, Distinguished Professor,

National Dong Hwa University, Taiwan, from C-6 (Biological physics). These are fields closely related to nuclear physics. They agreed to be associate members but only Azwinndini Muronga participated once in the C-12 meeting that took place in South Africa. To have associate members from other commissions is very interesting if they join our meeting and report on the activities going on in their commissions. We decided to wait a year and reflect and search for possible more active associate members. At the same time, we are in close contact with WG9 and frequent contact with WG1 (ICFA) and WG14 on accelerator science.

At the same time, we have been very active in promoting associate members from our field that represent very relevant countries for nuclear physics which are missing in the composition of C12. We have presently four approved associate members and their names are listed at the end.

Recommendations for IUPAP sponsorship of nuclear physics conferences in 2026

Seven requests for IUPAP sponsorship were reviewed within C12 in our meeting of May 28th, 2025. In a reminder email we asked to get the application before May 28th and in fact everybody followed our suggestions, and all applications came in time for our discussion. The applications are listed here below:

- **ARIS 2026:** The 5th International Conference on Advances in Radioactive Isotope Science, Fukushima, Japan
- **DREB 2026:** Direct Reactions with Exotic Beams, Shenzhen, Guangdong, China
- **Hard probes 2026: The 13th Int Conference on hard and Electromagnetic probes of High Energy Nuclear collisions, Vanderbilt University, Nashville, Tennessee USA**
- **Nuclear Structure 2026;** Simon Fraser University, Vancouver, Canada
- **Nuclear Physics in Astrophysics (NPA XII); Cluj-Napoca, Romania**
- **13th Latino American Simposium on Nuclear Physics and applications;** Sao Paulo, Brasil
- **The 59th Zakopane Conference on Nuclear physics, Extremes of the Nuclear landscape,** Zakopane, Poland

A separate report has been sent in by C12 on the suggested support of these seven conferences in the modalities A, B and endorsement.

International Nuclear Physics Conference, INPC 2028

The INPC brings together some 700 participants from around the World on a three-year cycle. It is the only international conference covering all the subfields of nuclear physics both at experimental and theoretical level. It is the main conference in the field of nuclear physics and has been rotating amongst the various continents, INPC2007 in Tokyo, INPC2010 in Vancouver, INPC 2013 in Firenze, INPC 2016 in Adelaide, INPC 2019 in Glasgow, INPC 2022 in Cape Town and INPC 2025 in Daejeon. It is the venue at which the three IUPAP Early Career Scientist prizes in Nuclear Physics are awarded every three years.

At the annual C12 meeting held during INPC 2025 in Daejeon we had five bids for holding the next INPC meeting, the one in 2028. This willingness to host the INPC conference demonstrates the strong dynamics within our community. The five bids were from three continents, China, France, India, Poland and Jefferson lab, USA. The C12 commission reviewed the plans and budgets as presented by the conference organizing committees and most of them were very satisfying. In particular the French proposal to celebrate INPC in Deauville met the IUPAP requirements very well, in particular with regards to open access, easiness to enter the Country, participation of women on committees, targets for female invited speakers and participation of young investigators and students. C12 decided that INPC2028 will be held in Deauville, France.

The announcement done during the conference dinner was highly celebrated by the large in-person French community.

Members of C12

The composition of C12 commission since January 2025 consists of 13 members, seven women and six men. We cover, both in experiment and theory, most fields of nuclear physics such as nuclear reactions, nuclear structure, nuclear astrophysics, nuclear instrumentation, hadron physics, QCD matter physics, fundamental interactions and symmetries. We used to be 14 members but we have one less member. We will appreciate getting another member among the associate members.

The C12 members are:

Chair: María José García Borge (2017)(2021)(2025) Spain; Vice-chair: Eberhard Widmann (2017)(2021)(2025) Austria; Secretary: Jin-Hee Yoon (2021)(2025) Korea

Mitko Gaidarov (2021)(2025) Bulgaria; Tord Johansson (2021)(2025) Sweden; Mattis Wiedeking (2021)(2025) South Africa now in USA

Laura Fabbietti (2025) Germany; Zsolt Fulop (2025) Hungary; Liam Gaffney (2025) United Kingdom; Marcella Grasso (2025) France; Adam Kisiel (2025) Poland; Rituparna Kanungo (2025) Canada; Sherry J. Yennello (2025) USA

Associate Members approved in the January meeting 2025

Diego Bettoni (2021), Italy; Roberto Meigikos Anjos Brazil; Satoshi Nakamura, Japan; and Cedric Simenel, Australia.



From Left to Right: Jin-Hee Yoon, Adam Kisiel, Diego Bettoni (associate), Tord Johansson, Rituparna Kanungo, Sherry Yennello, Maria J G Borge, Mathis Wiedeking and Eberhard Widmann