

IUPAP Working Group 9: Report to IUPAP General Assembly

Nuclear Science Symposia

One of the tasks of the IUPAP Working Group 9 [WG.9] is to organize with regular intervals a Nuclear Science Symposium in order to be appraised of the currently most relevant nuclear science questions, to discuss the research efforts required to address these nuclear science questions, as well as to assess the research facilities in operation or planned for pursuing these research efforts.

With this in mind WG.9 organized a first nuclear science symposium at TRIUMF, Vancouver, Canada, on July 2 – 3, 2010. A second one at Laboratori Nazionali di Frascati, Italy, on May 31, 2013, a third one at South-Eastern Universities Research Association (SURA) headquarters in Washington, DC, USA, on June 4 – 5, 2015, and a fourth one at the RIKEN Tokyo Office, Nihonbashi 1-Chome Mitsui Building, Tokyo, Japan on August 29-30, 2017. At these nuclear science symposia an effort is being made to invite and to have government/funding agency representatives participate in the deliberations. The 2015 Nuclear Science Symposium was organized upon the request of Timothy J. Hallman, Associate Director in the DoE Office of Science and saw participation from the Australian National Science and Technology Organization (ANSTO), Centre National de la Recherche Scientifique of France (IN2P3/CNRS), Istituto Nazionale di Fisica Nucleare of Italy (INFN), the National Research Council of Canada (NRC), the Natural Sciences and Engineering Research Council of Canada (NSERC), the US DoE Office of Science, the US National Science Foundation (NSF), the Science and Technology Facilities Council of the UK (STFC), and the Chinese Academy of Sciences (IMP-CAS). Overviews of current forefront nuclear science research being addressed or intended to be addressed together with the upgrading of current facilities and planned large new facilities were given by representatives from Asia, Europe, and North-America. Further presentations were given on the topics of: ‘Neutrino masses, neutrino mixing, neutrino-less double beta-decay, and the deep underground science laboratories’, the science case for an ‘Electron-ion Collider’, and the science programs of ‘Rare-isotope Beam Facilities’. The Nuclear Science Symposium concluded with an ‘in-Camera’ meeting of the government/funding agency representatives to discuss their individual perspectives. This, it is hoped, will lead to increasing mutual awareness and cooperation in the funding of future large scale nuclear science enterprises.

The fourth nuclear science symposium has been organized in a similar fashion. Details such as the scientific programs as well as the presentations will be posted on the website:

www.triumf.info/hosted/iupap/icnp/index.html

Annual General Meetings

The yearly meetings of IUPAP WG.9 are held in conjunction with the IUPAP C12 meetings (June 4-6, 2015, September 10-11, 2016, August 28-30, 2017). At these meetings updates from major nuclear physics facilities and nuclear physics long range planning and advisory committees are heard. IUPAP WG.9 is then also involved with various activities that promotes nuclear science in the developing countries. Details are given in the above website.

IUPAP WG.9 membership

The membership consists of the WG.9 Chairperson, the Past-Chairperson, the Secretary (acting as an Executive-Secretary), laboratory directors of major nuclear physics facilities around the world (five from Asia, four from Europe, four from North-America, and one from South-Africa), the Chairpersons and Past-Chairpersons of the regional long range planning organizations (including ALAFNA, ANPhA, NSAC, and NuPECC). The Chairperson of IUPAP's Commission on Nuclear Physics (C12) is an ex-officio member of WG.9.

The changes in membership were the following:

- Faical Azaiez was appointed as Director of i'Themba Laboratories as of February 1, 2016, and is replacing Kobus Lawrie as member of IUPAP WG.9.
- The incoming Scientific Director of GSI as of January 1, 2017, is Paolo Giubellino; he is replacing Karlheinz Langanke as member of IUPAP WG.9.
- As of May 1, 2016, the Chair of NSAC is David W. Hertzog of the University of Washington and Donald F. Geesaman of ANL has become the Past-Chair; both are members of IUPAP WG.9. Susan Seestrom of LANL as the former Past-Chair of NSAC has rotated off IUPAP WG.9.
- Dominique Guillemaud-Mueller who was the Deputy-Director of IN2P3/CNRS until September 1, 2016 has resigned as member of

- IUPAP WG.9 as of that date. Her replacement is Navin Alahari, Director of GANIL, as confirmed by the present director of IN2P3/CNRS Reynald Pain.
- At its AGM IUPAP WG.9 has invited the Director of the Rare Isotope Science Project (RISP) in Korea, Sun-Chan Jeong, to serve as a member of IUPAP WG.9.
 - As of January 1, 2017, the Chair of ANPhA is Kazuhiro Tanaka of KEK; Dong-Pil Min has become then the Past-Chair. Both are members of IUPAP WG.9.
 - As of April 3, 2017, Hugh Montgomery has stepped down as Director of Jefferson Laboratory and as member of IUPAP WG.9. He is replaced by Stuart Henderson, the current Director of Jefferson Laboratory.
 - As of January 1, 2018, Marek Lewitowicz of GANIL will become the Chair of NuPECC and Angela Bracco of INFN-Milano will become the Past-Chair; Guenther Rosner of the University of Glasgow will rotate off IUPAP WG.9.

The current membership of IUPAP WG.9 can be found on the website:
(<http://www.triumf.info/hosted/iupap/icnp/index.html>)

Open access to scientific data

The four major international science organizations: ICSU – International Council of Scientific Unions, ISSC – International Social Science Council, IAP – Inter-Academy Panel, and TWAS – Third World Academy of Sciences, have jointly created an accord “Open Data in a Big Data World”, which details principles and practices to support open access to “big data” in publicly funded research.

The Executive of IUPAP WG.9 endorses this accord, but was informed that at present there does not exist unanimous agreement on the wording of the document.

Forschungszentrum Juelich – Institut fuer Kernphysik and Cooler Synchrotron and storage ring COSY

The Executive was informed about the actions under consideration by the Board of Management of the Forschungszentrum Juelich:

terminating all contributions of the Forschungszentrum Juelich to the FAIR, HESR, and PANDA projects at GSI, Darmstadt, by the end of 2018;
ending the operation of the Cooler Synchrotron and storage ring COSY for the proton/deuteron EDM experiment by the end of 2019;
phasing-out the Institut fuer Kernphysik (IKP) at the beginning of 2020.

Subsequently, the Executive has been in communication with both the Scientific Coordinator for the Directors of the IKP of the Forschungszentrum Juelich and with the Scientific Director of GSI.

Based on its assessment of the above mentioned information the Executive has written letters to the Staatssekretaer Dr. Georg Schuette, Bundesministerium fuer Bildung und Forschung (BMBF), to Dr. Karl Eugen Hutmacher, BMBF, Chair of the Science Board of the Forschungszentrum Juelich, and to Staatssekretaer Dr. Thomas Gruenewald, Ministerium fuer Innovation, Wissenschaft und Forschung of the Bundesstaat Nordrhein-Westfalen, Deputy-Chair of the Science Board of the Forschungszentrum Juelich, expressing concerns about the actions under consideration.

More recent information has indicated that the above dates have been put forward now starting in 2022.

Super-Heavy Elements: Validation and Acceptance and Naming for the Periodic Table

The existing controversy about the various actions undertaken by IUPAC (the International Union of Pure and Applied Chemistry) with regards to the validation of the Super-Heavy Elements has resulted in rather difficult negotiations between IUPAP and IUPAC. The latter organization taking essentially credit for the discoveries of the Super-Heavy Elements as per the announcements which appeared in the scientific and regular press. IUPAP WG.9 received a long expose from Victor A. Matveev, Director of JINR-Dubna, one of the institutions where the relevant research was performed, about the progression of actions leading to the announcement of the validation and naming of the new Super-Heavy Elements by IUPAC. Following discussions the IUPAP Commission on Nuclear Physics, C12, has undertaken formulating a set of recommendation regarding this matter. It is hoped that for the elements beyond 118, if established, proper communications will come from IUPAP.

Rare Isotope Science Project (RISP) and Accelerator Complex RAON in Korea

The Executive of IUPAP WG.9 has been approached by the Chair of ANPhA to write a letter to the Honorable Dr. Choi Yanghee, Minister of Science, ICT and Future Planning of Korea, about the existing research structures around the above large scale project. Subsequently the Executive of IUPAP WG.9 has written to Dr. Choi Yanghee, on behalf of all its members, suggesting the early establishment of RAON research groups as the core teams of the RAON science programs. Regrettably, the missive was written just before the changes in the government of Korea currently giving some difficulties.

South-African Isotope Facility (SAIF) at iThemba Laboratories

Upon the request of Faical Azaiez, Director of iThemba Laboratories, the Executive of IUPAP WG.9 has written a missive in strong support of establishing and funding of SAIF at iThemba Laboratories. It is awaiting a positive response to this missive.

IUPAP Report 41

One of the mandates given to IUPAP WG.9 is to provide a compilation of the nuclear science user facility characteristics and statistics. The original publication, IUPAP Report 41, was compiled under the first Chairperson of WG.9 Anthony W. Thomas of the University of Adelaide. Since its first release in 2010, it has been updated in its electronics version in 2013 and a second update is currently underway. All facilities that are highlighted in the 2013 version of the report require that their entries be brought up-to-date in a regular fashion. Similarly, the Introduction to Report 41 giving an 'Executive Summary' as well as synopses on 'Nuclear Structure, Nuclear Reactions, and Nuclear Astrophysics', on 'Hadronic Nuclear Physics', on "QCD and Quark Matter", on 'Fundamental Symmetries', on 'Nuclear Physics: Basic Research Serving Society', on 'Future Nuclear Physics Facilities Around the World', and on 'Nuclear Power' are being updated following the Tokyo meetings.

Nuclear Science Symposium 2017 at the RIKEN Tokyo Office on August 29 – 30

These, now biennial symposia provide a summary of the current forefront nuclear science and the science goals for new major initiatives. The symposium stretched over the better part of the two days. The scientific program and slides of the presentations are to be found at:

<http://www.triumf.info/hosted/iupap/icnp/index.html>

The symposia provide representatives of the national funding agencies the opportunity to see how their efforts fit into an international framework and discuss ‘in-Camera’ their individual perspectives. The 2017 Nuclear Science Symposium had representatives from ANSTO Australia, CEA France, CNRS/IN2P3 France, Chinese Academy of Sciences, Department of Energy USA, INFN-Italy, NRF Zuid-Afrika, NSERC/NRC Canada, STFC UK, as well as members of RIKEN management. The ‘in-Camera’ meetings were reported on by Shoji Nagamiya of RIKEN. One of the outcomes of the ‘in-Camera’ meetings was a request to IUPAP WG.9 to develop guidelines on how to judge when a project grows from a regional effort to an international effort. Guidance on how to develop funding and secure support for operations for international projects is also being sought from among others from IUPAP WG.9.

Willem T.H. van Oers
Secretary of IUPAP WG.9

TRIUMF, September 12, 2017