

Report on the activity of WG9 – Period June 2022-June2023

Prepared by the chair Angela Bracco

The activity in this period mainly concerned two issues: the update of Report 41 and the organization of the annual meeting which took place on June 3, 2023 in Avignon (France).

Membership change

- Faical Azaiez has stepped down as director of I'Themba Laboratories (South Africa) and is replaced by the new director Makondelele Victor Tshivhase (since June 1, 2023) who is serving on IUPAP WG.9.

- Jeter Hall, Director of Research at SNOLAB, will serve on WG9 instead of Executive Director Jodi Cooley.

The chair, the secretary and some members of WG9 participated in the open session of C12 held on June4.

On July 11-13 2022 the WG9 chair attended and was the convener of the round table on "Early career researchers" at the Centenary symposium of IUPAP held in Trieste, where the Secretariat is located.

The chair followed the seminar organized by APS "Entering the New Century of IUPAP with a Renovated Vision" by Prof. Silvina Ponce Dawson, President designated from IUPAP.

It was decided to be connected with WG16 (Physics and Industry) and contribute through it via the Nuclear Physics Facilities of WG9. Indeed we consider it important to strengthen the connections with physicists working in industry and with industries which make strong use of nuclear physics and exploit developments made at our research facilities.

Navin Alhari from GANIL was nominated as our representative in WG16.

IUPAP Report 41

The Report gives a worldwide perspective of research and research facilities in Nuclear Science.

The Introduction to the Report outlines the key physics issues that have led to the nuclear science facilities existing or being planned:

- The nuclear physics as studied from its beginning; nuclear structure and nuclear reactions, the formation of the elements throughout the universe including the super-heavy elements.
- The structure of the nucleon consisting of quarks and gluons within the Standard Model.
- Fundamental symmetries leading to physics beyond the Standard Model and with the study of neutrino properties through neutrino-less double beta-decay and neutrino oscillations.
- Nuclear energy in the era of climate change and global warming.
- Applications of nuclear physics to the benefit of society, e.g. as in nuclear medicine.

The Report provides a brief description of the nuclear facilities that have an acknowledged User Organization.

The scientific secretary, with the help of the present and past chairs, was strongly involved in reshaping Report 41. Many contributions to update the description of the facilities around the world were collected in the past year. The work to homogenize the style was recently completed together with the writing of an introduction. The updated version of the report was recently distributed to the WG9 and C12 members for comments and from August 2023 will be available in our new webpage.

The plan for next year is to add a few pages with summaries of the Long Range Plans of NuPECC involving several European countries and of the Long Range Plan of USA, after their publication.

The 2023 Annual Meeting

The agenda focussed on the long range planning for nuclear science in the different areas in the world and on reports on major facilities under construction or starting operation.

In addition, a specific presentation concerning the NNDC Nuclear Data Evaluation was made by Elizabeth McCutchan. This important activity needs more involvement from our laboratories and thus WG9 will continue to pay attention on this issue.

Long Range Planning Organization Reports

Long range plan reports were presented for ALAFNA by Alinka Lepine-Szily (Universidade de Sao Paulo), for ANPhA (by Byungsik Hong) for NSAC by Gail Dodge (Old Dominion University), and for NuPECC by Marek Lewitowicz (GANIL). In addition there were reports on long range planning of Nuclear Science in South Africa (by **Rudzani Nematudi** from iThemba Laboratories) and on the TRIUMF 5 years plans and on the Canadian Subatomic LRP (by Nigel Smith from TRIUMF).

Reports on major facilities under construction or starting operation.

The status of the following facilities were presented and discussed:

- RAON in South Korea (by Seung-Woo Hong)
- FAIR International Facility in Germany (by Paolo Giubellino)
- FRIB in USA (by Thomas Glasmacher)
- EIC in USA (by Haiyan Gao)

The presenters pointed out the importance of the international collaborations to increase the attractiveness from users of these open access facilities. WG9 is playing a role in this connection.

Other issues

A short report on Nishina Centre at RIKEN (Japan) by Hiroyoshi Sakurai indicated the need to involve and consult WG9 for the preparation of their future plans. On line meetings will be considered to be held during the year to take care of this request.

The agenda of this meeting and the links to the presentation files are in:
<https://meetings.triumf.ca/e/iupap-wg9-2023>