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MIDTERM REPORT ON THE ACTIVITIES OF THE SCIENTIFIC COMMITTEE AND WORKING GROUPS

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LIST OF ACRONYMS AND ABBREVIATIONS

ScC	Scientific Committee
StC	Steering Committee
WGs	Working Groups
PSA	Pulse-Shape Analysis
FEE	Front-End Electronics

EXECUTIVE SUMMARY

INTRODUCTION

NUSPIN is the network in ENSAR2 for the Nuclear Spectroscopy and Complementary Equipment community involved in frontline research on nuclear structure, reaction dynamics and applications. The main goals are the promotion and coordination of scientific and technological activities, the exchange of knowledge and transfer of expertise between the working groups including training of young researchers and the optimisation of the use, construction and maintenance of the resources.

STEERING AND SCIENTIFIC COMMITTEES

Steering Committee:

The network has a Steering Committee aimed at coordinating and organising the different activities and tasks. It is formed as follows: Silvia M. Lenzi (Work-package leader, INFN, Padova), Magdalena Gorska (deputy-coordinator, GSI), Araceli Lopez-Martens (IPN,-CNRS, Orsay), Andres Gadea (IFIC, Valencia), Andrew Boston (University of Liverpool).

Scientific Committee:

The Scientific Committee members represent different collaborations on gamma-spectroscopy instrumentation and ancillary devices. Its goal is to promote collaborative ventures and to encourage the pooling of distributed equipment. The first meeting took place in San Servolo, Venice International University on June 28th, 2016.

The Scientific Committee is composed of Michael Bentley (University of York), Alison Bruce (University of Brighton), Giacomo de Angelis (INFN-LNL), Gilles de France (GANIL), Gilbert Duchene (IPHC, Strasbourg), Juergen Gerl (GSI, Darmstadt), Georgi Georgiev (CSNSM, Orsay), Paul Greenlees (JYFL, Jyvaskyla), Jan Jolie (University of Cologne), Wolfram Korten (CEA, Saclay), Silvia Leoni (University of Milano), Adam Maj (IFJ PAN, Krakow), Gerda Neyens (ISOLDE, CERN), Johan Nyberg (Uppsala University), Peter Reiter (University of Cologne), Berta Rubio (IFIC, Valencia) and Calin Ur (ELI-NP / IFIN-HH).

The first meeting of the ScC took place in San Servolo, Venice International University on June 28th, 2016.
As this was the first meeting, there were oral presentations from the members of the ScC illustrating the activities in the respective institutions or collaborations.

The second meeting of the ScC took place at GSI, Darmstadt, on June 28th, 2017.
There was a discussion on the problem of maintaining the valuable equipment, in particular Ge detectors.
Some laboratories and/or collaborations have engineers and technicians who have developed useful skills that could be shared and transferred to other laboratories.
It was decided to organise a workshop next year where for the first time these experts will meet and exchange experience and techniques. This will help the transfer of know-how and the collaboration between the different laboratories. The meeting will be organised at the University of Cologne in 2018.

WORKING GROUPS:

The Working Groups in NUSPIN aim at cooperating on the use, research and development of the detectors and on improving the performance and compatibility of the devices: mechanics, electronics, data acquisition, simulation tools, and R&D. The Working Groups are coordinated by Daniele Mengoni (University of Padova).

The first meeting of the WGs took place in San Servolo, Venice International University on June 28th, 2016.

Following the introduction by the WG Convener, Dr. Daniele Mengoni, several oral presentations were given by the participants on the four different subjects of the WG. The WGs were then formed and the respective conveners elected:
WG1: High-resolution gamma-ray spectroscopy. Convener: Francesco Recchia (University of Padova and INFN)
WG2: Particle detectors. Convener: Marlène Assié (CNRS, Orsay)
WG3: High-efficiency and fast-timing scintillator detectors. Convener: Enrique Nacher (CSIC, Madrid)
WG4: Devices for nuclear moments and transition probabilities. Convener: Alain Goasduff (University Of Padova and INFN)
There are common interests among the members of the different WGs that are not exclusive and therefore some researchers participate in more than one WG. The list of members can be found in the website and has been communicated in the deliverable D4.1.

The second meeting of the WGs took place at GSI on Wednesday, 28 June 2017. It was organised within the NUSPIN workshop in order to maximise the participation in the event. Approximately 30 scientists participated in the meeting. There were 11 oral presentations. During the WG meeting, after a short introduction, four sessions on the four WG topics took place sequentially.

On the topic of WG1 “Perspective for the use of gamma-ray spectrometers” three contributions were presented. These Ranged from the perspective of having a distributed detector laboratory of the community to the description of future set-ups like JUROGAM III as well as new set-ups involving superconducting solenoids and Germanium detectors.

On the topic of WG2 “Particle detectors”, which involves “Data treatment for PSA, FEE, and beam-tracking devices”, also three contributions were presented with topics including the effect of radiation damage on PSA, new electronic developments for analogue sampling based on ASICS as well as new techniques for sub-picosecond time-resolution measurement in beam-tracking devices.

On the topic of WG3 “High-efficiency and fast-timing scintillators” contributions were presented on the high-energy response of LaBr3 detector, the digital electronics strategies for ultra-fast scintillator detectors and on innovative solutions for the CALIFA end-cap scintillator detector array.

On the topic of WG4 involving “Coupling a plunger device with a particle detector” two contributions, one on a new plunger device and another on high-precision g-factor measurements, were presented.

There was ample time for discussions and exchange of information.

CONCLUSIONS

The Scientific Committee has met two times simultaneously with the NUSPIN Workshops. The different activities related to representing the community or research facilities were presented in the first meeting. In the second meeting, the problems related to the maintenance and developments of detectors were discussed. In particular, it was decided to organise a training school on Ge detectors for PhD and postdocs. This will be organised at the University of Liverpool in 2018. Another initiative is the meeting of all technicians, physicists and engineers involved in the development and maintenance of Ge detectors. This hands-on workshop will be organised in 2018 in Cologne.

The meetings of the WGs served to show the developments and perspectives of the different types of detectors at the different infrastructures and institutions. There was an exchange of information and experience, together with a discussion on possible cooperation and sharing of equipment.

The different committees and working groups proceed as foreseen in the project.