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

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Author: Silvia Lenzi
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	Contributors:	Daniele Mengoni, INFN-Padova
	Reviewed by:	Marek Lewitowicz, GANIL
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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
AGATA	Advanced Gamma Tracking Array

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 by: Silvia M. Lenzi (Work-package (WP) leader, INFN, Padova), Magdalena Gorska (deputy-WP leader, 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. The goal of the Committee is to promote collaborative ventures and to encourage the pooling of distributed equipment.

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), Calin Ur (ELI-NP / IFIN-HH) and Maria J. Garcia Borge (CSIC Madrid).

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.
The problem of maintaining the valuable equipment, in particular Ge detectors was discussed at the meeting.
Some laboratories and/or collaborations have engineers and technicians who have developed useful skills that could be shared and transferred to other laboratories.
During the second meeting, it was decided to organise a workshop in 2018 at the University of Cologne, where for the first time these experts will meet and exchange experience and techniques. This would help the transfer of know-how and the collaboration between the different laboratories.

The third meeting of the ScC took place at the IFIC Research Institute, in Valencia, Spain, on June 26, 2018.
The WP Leader reported on the meeting between the AGATA management and the Directors of the hosting ENSAR2 facilities, organised by NUSPIN at GANIL on February 22, 2018 (LNL, GSI/FAIR, ISOLDE, GANIL). A discussion followed on the different possibilities envisaged for the future AGATA campaigns.
The WP Leader reported on the Hands-on Workshop on the Operation, Test and Repair of Ge Detectors, organised by NUSPIN in Cologne on September 4-7, 2018. The Workshop was suggested by the ScC in the 2017 meeting at GSI and has been organised by J. Gerl, D.R. Napoli, and P. Reiter and can be found in (http://agenda.infn.it/event/nuspin.hpge2018). The number of 39 registered participants exceeded by large the expectations.
Topics to be covered by the NUSPIN School on Gamma detectors to be organised in 2019 in Liverpool were discussed.
An exchange of information followed on the opportunities at the different infrastructures, the availability of resources, the distribution of resources and planned campaigns, and exchange and pooling opportunities.

COORDINATION MEETING FOR THE AGATA CAMPAIGNS. The meeting between the AGATA management and the directors of the hosting laboratories took place at GANIL on February 22, 2018. The participants were the directors (or representatives) from the ENSAR2 facilities GANIL, LNL-INFN, GSI/FAIR, ISOLDE-CERN, the chair of the AGATA Steering Committee, the chair of the AGATA Managing Board, the AGATA Project Manager at GANIL and the NUSPIN WP Leader. After the presentations from the AGATA management, the Directors presented the status of the different infrastructures and their plans to host AGATA.

Ample time was allocated for discussions and exchange of information in a very collaborative atmosphere.

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 28, 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 detectors, 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.

Ample time was allocated for discussions and exchange of information.

The third meeting of the WGs took place at the IFIC Research Institute, in Valencia, Spain, on June 26, 2018. It was organised within the NUSPIN 2018 workshop in order to maximise the participation in the event. Approximately 35 scientists participated in the meeting. This time there was a general oral presentation for each WG, followed by one/two short selected presentation, also for each WG, with a total of 8 oral presentations. This organisation allowed to have more time available for the discussion and exchange of information.

On the topic of WG1, the introductory talk was about “Nuclear structure by missing mass and gamma-ray spectrometry” followed by “COMSOL simulations of HPGe detectors with multiple contacts” and “Novel contacts in HPGe for gamma-ray detectors” by young researchers.

On the topic of WG2 “Particle detectors”, there was a talk on “Charged-particle detection systems for direct reaction studies”.

On the topic of WG3 “High-efficiency and fast-timing scintillators”, the selected topic was “Development of a new scintillation detector based spectrometer at the RIBF” followed by another contribution on ”Recent news from the PARIS array”.

Finally, on the topic of WG4 involving “Coupling a plunger device with a particle detector” a contribution on ”Internal conversion electron measurements at SPES” was presented.

Ample time was allocated for discussions and exchange of information.

CONCLUSIONS

The Scientific Committee has met three times during the same weeks as the NUSPIN Workshops. Several initiatives were discussed and workshops and schools organised. There has been an exchange of information on ongoing and future physics campaigns, including AGATA, on the use and status of the resources, on future plans of collaborations at the different infrastructures.

The organisation of a meeting between the AGATA management and the directors of the hosting laboratories was very successful.

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 group meetings and activities proceeded as foreseen in the project.