

# NuSpIn

## Nuclear Spectroscopy Instrumentation Network

the network for the **gamma-spectroscopy**  
and **complementary-instrumentation** community

### Promotion and Coordination

of scientific and technological activities for frontline research

### Exchange of knowledge and transfer of expertise

between the working groups and towards young researchers

### Optimization

of the use, construction and maintenance of the resources

<http://nuspin.pd.infn.it>



# motivation

**High-resolution gamma-ray spectroscopy** is the principal tool for investigations in nuclear structure as it allows to study the excited nuclear states and their properties with high precision.

The **sensitivity** of gamma-ray devices **increases** significantly if combined with **ancillary detectors** for charged particles, heavy ions and neutrons.

**High-efficiency gamma-ray** detectors and **calorimeters** based on **scintillator materials** are essential tools to study weak processes, nuclear dynamics and structure far from stability.

**High-complexity experiments require the association of different types of detectors**



# motivation

The collaborations in nuclear structure are **investing much effort and resources** in developing new instrumentation, experimental methods and techniques for frontline research at the different infrastructures.

Most of these techniques are of **common interest** and the **exchange** of information as well as the development of **synergies** are of great benefit to the whole research community.

# the actors



## Collaborations on the design, construction, and operation of:

High-resolution Ge arrays

High-efficient scintillator arrays (high energy and fast timing)

Charged-particle detector arrays

Neutron-detector arrays

Setups for beta-decay measurements

Setups for nuclear-moments measurements

# specific actions



- To ensure the efficient and innovative use of the valuable European gamma-ray spectroscopy resources at the different infrastructures, each with its specificity in beam species and energy ranges
- To promote the collaboration and sharing of expertise between different research and technical domains
- To promote the coordination of the experimental campaigns at the different infrastructures providing and exchanging information on their potential opportunities

# specific actions (2)



- To promote the cooperation in the development, design and construction of gamma-ray and particle detectors
- To encourage and organize the pooling of distributed equipment in order to enhance synergies between complementary resources for common large-scale projects
- To encourage and facilitate the exploration of ground-breaking solutions to pave the way for future generation arrays, both high-resolution gamma spectrometers and complementary devices
- To build bridges between the scientific developments and the applications for the society.



# The tasks

# task 1

## Coordination, promotion and dissemination

- 1.1 Steering Committee:** to coordinate and organize the different activities and tasks
- 1.2 Scientific Committee:** to promote collaborative ventures and to encourage the pooling of distributed equipment

**Meeting Tuesday 28<sup>th</sup> at 14.30**

- 1.3 Coordination between the Infrastructures:** to organize annual meetings between the management of the gamma-spectroscopy collaborations and the directors of the hosting infrastructures



# task 2

## Working Groups :

*to cooperate on the use, research and development of the detectors and to improve the performance and compatibility of the devices: mechanics, electronics, data acquisition, simulations tools, R&D*

**2.1 WG1:** High-resolution gamma-ray spectroscopy.

**2.2 WG2:** Particle detectors.

**2.3 WG3:** High-efficiency and fast-timing scintillator detectors.

**2.4 WG4:** Devices for nuclear moments and transition probabilities.

**Meeting Tuesday 28<sup>th</sup> at 14.30**



# task 3

## Collaboration Workshops

organized **on an annual basis** in different countries, will allow the whole community to meet together, to present scientific results, to discuss on common problems, to strengthen collaborations and to start new ventures.

## WG Workshops

# task 4

## Transfer of knowledge

### **4.1 training courses for new users**

*for a new generation of researchers, ready to exploit in the best way all the essential tools needed for their research*

### **4.2 exchange of key personnel**

*to ensure common knowledge base*



# organization and budget

**The network is managed by a Steering Committee:**

INFN-Padova: Silvia M. Lenzi (coordinator)

GSI: Magdalena Gorska (deputy-coordinator)

IN2P3-Orsay: Araceli Lopez-Martens

IFIC-Valencia: Andres Gadea

Uni Liverpool: Andrew Boston

**The total budget is 170 k€ distributed in these 5 nodes to allow an efficient and optimized use of the funds**



# Participants

- Croatia:** Ruder Boskovic Institute (Zagreb), U-Zagreb
- Finland:** JYFL
- France:** GANIL, CEA, CSNSM-Orsay, IPN-Orsay, IPHC-Strasbourg; Subatech, Nantes
- Germany:** GSI, U-Koln, TU-Darmstadt
- Greece:** NCSR-Demokritos
- Hungary:** ATOMKI-Debrecen
- Italy:** INFN: LNL, Padova, Milano, Firenze, Napoli
- Poland:** HIL, U-Warsaw, IFJ-Pan Krakow
- Romania:** NIPNE, IFIN-HH/ELI-NP
- Spain:** IFIC-Valencia, UAM-Madrid, U-Huelva, U-S. de Compostela, IEM-CSIC; CIEMAT-Madrid, GFN-U-Complutense, U-Salamanca
- Sweden:** KTH, U-Lund, U-Uppsala
- Turkey:** U-Ankara, U-Istanbul
- UK:** STFC Daresbury, U-Liverpool, U-Manchester, U-Surrey, U-York, U-Birmingham, U-West Scotland

# NUSPIN 2016 Workshop

Nuclear Spectroscopy Instrumentation Network



and

## AGATA Physics Workshop

### Associated Events

- Kick-off Meetings of the NUSPIN Scientific Committee and Working Groups
- Annual Meeting of the AGATA Collaboration Council

# Enjoy the Workshop!

### Organizing Committee

S. M. Lenzi (chair, Padua), A. Boston (Liverpool),  
A. Gadea (Valencia), M. Gorska (Darmstadt),  
A. Lopez-Martens (Orsay), S. Lunardi (Padua),  
D. Mengoni (Padua), D. R. Napoli (Legnaro),  
J. Nyberg (Uppsala), F. Recchia (Padua),  
J. J. Valiente Dobón (Legnaro)

### Secretariat

Elena Pavan (INFN, Padova)  
Adriana Schiavon (Università di Padova)  
Info: <http://nuspin.pd.infn.it/nuspin2016>

San Servolo, Venice, 27 June - 1 July, 2016



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di Fisica  
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