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 28th 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 28th 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
Sweden: KTH, U-Lund, U-Uppsala
Turkey: U-Ankara, U-Istambul
UK: STFC Daresbury, U-Liverpool, U-Manchester, U-Surrey, U-York, U-Birmingham, U-West Scotland
Enjoy the Workshop!