Postdoctoral researcher in experimental nuclear physics:

spectrometer instrumentation and set-up (M/W) ref 345

Place of work: CAEN

Type of contract: Scientific fixed-term contract

Section CN: Interactions, particles, nuclei from the laboratory to the cosmos

Contract duration: 24 months

Planned start date: 01/02/2024

Position: Full-time

Salary: €2905 to €4,081 gross per month**,** depending on experience.

Level of education: doctorate

Desired experience: 1 to 4 years

Responsibilities

Research in nuclear physics at the LISE spectrometer

Participate in the preparation of experiments with the LISE spectrometer, in collaboration with the LISE scientific manager and the experiments spokespersons.

Activities

Take part in the preparation and follow-up of experiments at LISE, as well as in the experimental nuclear physics research and development (R&D) activities of the physics division around the GANIL experimental areas.

Main responsibilities

1. Contribute to keeping the LISE spectrometer up to date
2. Help to tune the spectrometer, with increasing responsibility over time.
3. During the experimental preparation phase, install, test and setup detection systems and associated electronics and data acquisition systems.
4. Suggest solutions for sustaining and developing the performance of the spectrometers used in the experimental rooms.
5. Participate to research in nuclear physics using the LISE spectrometer.
6. Supervise students

Expected education degree:

PhD in experimental nuclear physics

Skills & experience:

- Knowledge of beam identification and control techniques for spectrometers used in nuclear physics. In particular, expertise in beamline optics is essential.
- Expertise in radiation-matter interaction, spectrometers, instrumentation, data analysis.
- Expertise in ion detection and identification techniques.
- Knowledge of reference simulation tools (LISE++ or equivalent would be a plus) and data analysis methods (C++, root).

Soft skills:

- -Ability to work in a team and international collaborations
- -Organization
- Autonomy, intiatives
- Communication skills.

Context

The Grand Accélérateur National d'Ions Lourds (GANIL) is a national research infrastructure based on the use of ion beams. Its fields of research are fundamental research in nuclear physics and nuclear astrophysics, the study of materials under irradiation and nanostructuring, molecular collisions and the interstellar medium, radiobiology and innovative techniques for imaging and therapy of certain cancers.

GANIL (about 290 people) is located in France, in the city of Caen, in Normandy. It is managed jointly, within an Economic Interest Group (GIE) by the Commissariat à l'Energie Atomique (CEA/DRF) and by the Centre National de la Recherche Scientifique (CNRS/IN2P3). As a national research infrastructure, GANIL serves the national, European and international scientific community of about a thousand users.

The person recruited will be attached to the CNRS Support and Research Unit (UAR 3266) at IN2P3 within AR (Activité de Recherche) group, with 25 permanent physicists, about 20 PhD fellows and a ten of post-doctoral fellows.

This group is part of the Physics Division, which also includes the DELPH (Detection and Lasers for Physics) and GTA (Acquisition Techniques Group) groups.

The division's staff are responsible for hosting experiments at GANIL by an international scientific community. They also lead an R&D program on detection techniques, laser techniques, data acquisition techniques for experiments, and the manufacture of targets and thin films.

This position is part of a program to optimize the hosting of foreigners experimenters on GANIL's spectrometers, and in particular on the LISE spectrometer.

The person engaged by the CNRS will be entitled to 53 days' leave with a 40-hour working week, and will benefit from the advantages offered by the social action committee for CNRS staff at GANIL.

Constraints and risks

The person will be on duty at home during periods in operation, and in particular during spectrometer set-up phases.

As GANIL is classified as a Basic Nuclear Installation (INB), the position is eligible for specific work constraints related to potential exposure to ionizing radiation.

The hired person shall be authorized to work in a supervised and controlled area in compliance with the regulations and procedures applicable to nuclear security and safety.