Research Fellowship - CLEANDEM project

Job Description and Candidate’s Profile

INFN announces the opportunity for a two-years research fellowship in the context of the “Cyber physicaL Equipment for unmAnned Nuclear DEcommissioning Measurements (CLEANDEM)” project. The fellowship is funded by the European Commission Innovation Action (IA) European Union’s H2020-Euratom-1 program.

In the CLEANDEM project framework there will be a development of innovative technological tools (low-cost radiological sensors, miniaturized gamma camera, advanced discriminating materials for gamma-ray spectrometry and neutron measurements) embedded on an intelligent robotic radiological platform for fully remoted operations. In this area we want to develop the following detectors:

- Minispectrometer for Gamma Rays, based on CsI(Tl) crystal (≈1 cm³) coupled to Silicon PhotoMultipliers
- Miniature Neutron Counter, based on silicon detector, or a silicon photodiode, coupled to a neutron converter made of 6LiF.

The research fellow will be involved in the design of the electronic system to fully handle the described devices:

- Front-end amplifier-signal conditioner
- Analog to Digital Conversion
- Data Acquisition and transmission over standard wireless channels

All these functions will be implemented partially with custom made electronics boards while the DAQ and transmission will be implemented using standard commercial off the shelf microcontroller boards. The firmware/software needed to manage these devices will be part of the project.

Candidates are required to hold a master degree / PhD in experimental particle physics, electronics engineering or computing engineering. Specific experience with analog and digital electronics and microcontroller programming is requested. Interested candidates are encouraged to contact eng. Saverio Minutoli (Saverio.Minutoli@ge.infn.it). The position is expected to be effective starting from Spring/Summer 2021, following the official INFN recruitment procedures.

Position details:

- Full-time position for two years.
- Approximate Net annual salary: 20500 €
- The position will be based in Genova
- Benefits include:
  - Social security benefits (information is available on request).
  - 5000 € incentive if the selected candidate got his master from an institution other than Genova University and was not resident in Genova the three years previous to the start of this activity.
  - Lunch tickets.

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