Beam-Optics Expert

Reference 552
Deadline 2019-02-01
Duration Permanent

Job description

SCK•CEN is developing the multi-purpose irradiation facility MYRRHA, a flexible fast spectrum research infrastructure conceived as an Accelerator Driven System (ADS). It consists of a 600 MeV proton linear accelerator (linac) which drives a lead-bismuth cooled sub-critical reactor. According to the MYRRHA phased implementation plan, a first facility will be constructed at SCK•CEN in Mol, composed of a 100 MeV proton linac coupled to a Proton Target Facility. This facility, contains an Isotope Separation On-Line (ISOL) target station for fundamental research and for the production of medical radioisotopes as well as a target station for fusion material research. In the ISOL facility, isotopes are produced in thick targets via proton-induced reactions, and delivered to experiments in the form of radioactive ion beams (RIB).

In the framework of this project, the Institute for Advanced Nuclear Systems (ANS), is looking for a "Beam-Optics Expert" to join the Proton Target Research (PTR) unit of the Accelerator Project (ACP) group.

As Beam-Optics Expert you will be part of the ISOL team having the following tasks and responsibilities:

• Design of the proton-beam transport within the PTF facility towards the different target stations;
• Design of the proton-beam rastering system to spread the beam towards the ISOL target;
• Design of the RIB transport system downstream the ISOL front-end;
• Design of RIB switchyards, RIB distribution towards the different collector and experimental stations;
• Specification and design of the ion-optical elements in the proton and RIB lines for proper transport and distribution of the beams.
• Specification and design of required beam diagnostic systems for efficient and safe transport of the proton-beam and RIB.

Required qualifications

• Master’s degree/ PhD in Physics or Engineering;
• Expertise in the design of systems for charged particle beam acceleration, transport and manipulation;
• Experience with beam-optics modelling, beam dynamics & particle tracking codes, single and multi-particle simulations (like TraceWin MAD-X, SIMION,...);
• Experience with normal-conducting magnet design and measurements is a plus;
• Use of programming languages (Python, Matlab, C/C++...);
• Excellent communication and reporting skills;
• Fluency in English (with the ability to draw-up technical specifications & reports and to make oral presentations). Knowledge of French or Dutch is an advantage;
• Willing to travel abroad occasionally (depending on the experience of the candidate, possibility to spend a start-up period of up to 3 months at collaborating laboratories abroad);


Contact

Should you have any questions, please contact

Van Pottelbergh Patricia
+32 (0)14 33 25 82