

**Junior Researcher at
Extreme Light Infrastructure – Nuclear Physics (ELI-NP)**

Competency profile

Context

Extreme Light Infrastructure – Nuclear Physics (ELI-NP) will be a new Center for Scientific Research to be built by the National Institute of Physics and Nuclear Engineering (IFIN-HH) in Bucharest-Magurele, Romania.

ELI-NP is a complex facility which will host two state-of-the-art machines of high performances:

- A very high intensity laser, where beams from two 10 PW lasers are coherently added to get intensities of the order of 10^{23} - 10^{24} W/cm²;
- A very intense ($\sim 10^{13}$ γ /s), brilliant γ beam, ~ 0.1 % bandwidth, with $E_\gamma > 19$ MeV, which is obtained by incoherent Compton back scattering of a laser light off an intense electron beam ($E_e > 700$ MeV) produced by a warm linac.

ELI-NP will consistently investigate a broad range of science domains, from new fields of fundamental physics, new nuclear physics and astrophysics topics, to applications in material science, life sciences and nuclear materials management.

Objectives of the ELI-NP

ELI-NP project envisages the following main objectives:

- Building the facility (expected to start at the beginning of 2013 and expected to be completed at the end of 2014).
- Purchasing the two major pieces of Equipment (two high power lasers and the gamma beam system) as a result of public procurement procedures according to the applicable legislation. Their construction is expected to start in the first part of 2013 and the final commissioning in the first part of 2017.
- Preparing the Technical Design Reports for the experiments and auxiliary

laboratories.

- Promoting the future multidisciplinary research opportunities of ELI-NP to users.
- Implementing the human resources strategy conceived for securing the necessary workforce in terms of quality and quantity.
- Defining and implementing the conditions necessary for the future operation.

The main objective of the implementation phase of the Project is to ensure the timely delivery and the commissioning of the high power laser and gamma beam systems, the technical synchronization between them and their integration with the construction. In addition, the design and development of the ELI-NP experimental areas will be performed.

In the operational phase, the activity will be focused on pursuing the scientific program of ELI-NP and maintaining the best performance of the systems.

The main research activities will be grouped in the following directions: (1) High-Power Laser System, (2) High-Brilliance Gamma Beam, (3) Nuclear Physics with High-Power Lasers, (4) Nuclear Physics and Applications with high-brilliance gamma-beams, (5) Fundamental Physics with combined laser and gamma beams.

Details regarding the ELI-NP project can be found on the project's web site www.eli-np.ro.

Position description

Junior Researchers will ensure part of the scientific expertise needed in the operation and development of the experiments of ELI-NP.

Junior researchers will pursue their activity in working groups lead by Senior Researchers, in which personal research and collaboration initiative will be encouraged.

Main responsibilities:

Junior Researchers will:

- participate to research activities lead by Senior Researchers;
- take part in scientific meetings and conferences;

- take part in the definition and development of the ELI-NP experimental areas.

Main tasks:

- Performing the specific tasks within the Research Activity lead by a Senior Researcher;
- Participating at scientific meetings and conferences;
- Participation in the elaboration of the Technical Design Reports (TDRs) for the experimental areas of ELI-NP;
- Participation in the specific activities during commissioning and installation phase;
- Provide support for elaboration of technical documents for the Project's deliverables acceptance.

Professional background:

- PhD degree in fields related to research activity at ELI-NP;
- At least 4 year experience in nuclear/laser physics and ELI-NP related fields;
- Very good knowledge in science relevant for ELI-NP;
- Excellent proficiency in English.

Working arrangements/Conditions of employment

- Full time position, based in Bucharest - Magurele, Romania;
- Motivating salary based on qualifications and experience;
- The candidate should be available to travel abroad for scientific collaboration at various research infrastructures, for part of their time.

Applications:

The applications shall be accompanied by curriculum vitae and other relevant information bearing the candidates qualification for this position. The candidates shall demonstrate the achievements and experience in scientific research activities.

The applications / letters of intent will be addressed to the Human Resources Department at raluca.stoicea@eli-np.ro.