

Engineers

***(Laser, Particle Accelerators, Optics, Mechanical, Electrical,
Electronics, Instrumentation&Control)***
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 technological implementation is carried out by a team of scientists, engineers and technicians, responsible for the implementation of the equipment at ELI-NP, led by the Technical Director. The main objective of the technological implementation of the Project is to ensure the timely delivery and the commissioning of the two high power laser arms and the gamma beam system, the technical synchronization between them and their integration with the construction.

In the operational phase, the activity will be focused on maintaining the best performance of the ELI-NP systems. In this phase the engineers will provide the technical support for the preparation and development of the experimental arrangements.

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

Position description

In the implementation phase, the Engineers from ELI-NP will ensure the ELI-NP's technical support in relation to the technological strategy and direction, with a particular focus on ensuring the commissioning of the facility and its further operation.

During the operational phase, the selected Engineers will be in charge with one of the two major Equipment of ELI-NP: High Power Laser System or Gamma Beam System, based on his/her skills and competence.

He/she will be accountable for his/her action to the Heads of experiments and the members of the Management Board.

Main responsibilities:

- Acquiring the necessary knowledge and getting sufficient expertise for monitoring the functioning of the installation and behavior of the respective Equipment. In this context, the engineers will benefit of training at the equipment providers, actively participating at the assembly, testing and commissioning of the equipment. Therefore, the candidate should be available to travel and to work abroad for a definite period of time;
- In the implementation phase, the engineers are mostly dedicated to perform engineering tasks during the process of construction and commissioning of the Equipment and having a permanent dialogue with the respective Equipment providers; also, some of the engineers will be focused on setting up the experiments;
- Ensuring a good and efficient collaboration and dialogue between the scientific staff and the suppliers of the respective Equipment and various services;
- Ensuring the compliance of the activities with the engineering standards;
- During the operational phase, the engineers will be responsible to maintain the ELI-NP systems 'performance at the designed values.
- Ensuring the assessment of the needs, offers, provided services and construction work, etc.

Main tasks:

- Participation on the elaboration of the Technical Design Reports (TDRs),
- Evaluating the technical offers for various components,
- Monitoring the fulfillment of the related contracts,
- Participating at the preparation of the site,
- Assisting on the commissioning and installation,
- Supervising the further functioning of the equipment and buildings,
- Assist in preparation of the documents for intermediate and final reception stages,
- Ensure support for elaboration of technical documents for deliverables acceptance and payments,
- Ensure the proper operation of the High Power Laser System or the Gamma Beam System.

Technical skills:

- University degree in Engineering/Physics in areas related to ELI-NP
- At least 3 year experience in technical support within research and development laboratories
- Very good knowledge in technology 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.

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 technical activities at research & development laboratories.

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

A competitive recruitment will be organized for the positions of Engineers. The selection will be based, among others, on technical excellence in the precise fields covered by the Project as demonstrated by the competence in the previous work and experience in their field of expertise.