

The ELI (Extreme Light Infrastructure) Project is an integral part of the European plan to build the next generation of large research facilities. ELI-Beamlines is a cutting edge laser facility currently being constructed in Dolní Břežany, next to Prague in the Czech Republic. ELI will deliver ultrashort, ultraintense laser pulses lasting typically a few tens of femtoseconds at an unprecedented combination of intensity and repetition rate. It will make available a unique combination of time synchronized beams from the primary lasers and secondary sources for a wide range of interdisciplinary applications in physics, chemistry, medicine, biology and material science.

At ELI Beamlines, Research Program 2 (RP2) is dedicated to X-rays sources driven by ultrashort laser pulses. Applications of the femtosecond X-ray flashes generated at ELI-Beamlines include those such as X-ray phase-contrast imaging, XUV and X-ray holography of complex cells and proteins, as well as the study of the very first steps of biomedical reactions and many others (material science, environmental science, etc.). The laser-driven undulator X-ray source (LUIS) is designed to provide users with few-nm, few-fs X-ray pulses combined with two auxiliary beams with pulse durations  $< 30\text{fs}$  and  $< 7\text{fs}$  at 10Hz repetition rate. The main challenge in this research and development of the LUIS beam line is one of the steps towards stable 'laser-driven' free electron laser.

The experimental areas at ELI Beamlines are presently under development and suitable applicants must be intrigued by the opportunity to build the state-of-the-art instrument they will use in their research. Following completion the ELI Beamlines facility will also support user operations. This means that the ELI Beamlines scientific staff will work both with independent research as well as supporting members of an international user community who come to work at the scientific end stations.

## **JUNIOR RESEARCHER position: Photon beam transport design/development and photon beam characterization for user's experimental activities.**

**The candidate is supposed to work predominately on the following topics:**

- Development of the LUIS beam line in order to perform the user-oriented operation.
- Take an active role in analysis of the experimental data using advanced numerical algorithms for image processing and data analysis.
- Support of the user's experimental programme in the ELI Beamlines facility.
- Participate in relevant experimental and theoretical work in the labs of national and international collaborators as well as at suitable research facilities.
- Participate in the development of the general experimental capabilities of ELI beamlines RP2.
- Participation in planning, purchasing and other administrative tasks.

## Requirements:

- PhD in Physics, X-ray diagnostics or equivalent capabilities.
- Strong background in mathematics and programming.
- A few years of experience in X-ray spectroscopy research, ideally using both continuous and pulsed X-ray sources.
- Experience from applied physics, in particular in physics of interaction of X-ray with matter and X-ray imaging.
- Experience from application of numerical methods for image processing and data analysis.
- Good knowledge of different OS (linux, windows) and scientific software packages (matlab, matview, Mathematica).
- Experience from designing, building and implementing X-ray instrumentation, in particular X-ray optics and data acquisition.
- Experience from simulation of the X-ray radiation deposition based on the GEANT software, is an advantage.
- Experience from developing control systems for different experimental equipment is an advantage.
- Experience from usage of different multi-processors clusters is an advantage.
- Experience from operation of a photon beam line is an advantage.
- Experience from new instrumentation commissioning is an advantage.
- The working environment is international and a good knowledge of spoken and written in English is necessary.

## We offer:

- The opportunity to participate in this unique international scientific project.
- Career growth, professional education.
- Competitive and motivating salary.
- 5 weeks of holidays and other employee benefits.
- The opportunity to participate world-wide collaboration activity.

Applications, containing CV, cover letter, contacts of references, and any other material the candidate considers relevant, should be sent to Mrs. Jana Ženíšková, HR specialist ([jana.zeniskova@eli-beams.eu](mailto:jana.zeniskova@eli-beams.eu), +420 - 601560322). Please include the following text in your cover letter, to allow us to process your personal details:

*I agree that, according to the decree 101/2000 coll. (Czech Republic), my personal details sent to FZU AV CR, v.v.i., Na Slovance 2, 18221 Praha 8, Czech Republic can be used for the purpose of obtaining employment and management of database of employment candidates. This permission is given for the period of one year and can be at any time withdrawn by giving a notice in writing.*