

ELI Beamlines research centre in Dolní Břežany is part of pan-European infrastructure ELI (Extreme Light Infrastructure) representing a unique tool of support of scientific excellence in Europe by making available its capacities to the best scientific teams across the world. The aim of ELI Beamlines is to establish the most intensive laser system in the world and to operate it on a long-term basis. Due to ultra-high performances of 10 PW (1 petawatt = 1,000,000,000,000,000 watts) and concentrated intensities of up to 1024 W/cm², we can offer our users a unique source of radiation and beams of accelerated particles. The so called beamlines will enable groundbreaking research in the area of physics and science dealing with materials, but also in biomedicine and laboratory astrophysics and many other fields. ELI Beamlines is part of the Institute of Physics of the Czech Academy of Sciences, and it was open in 2015.

The Institute of Physics of the Czech Academy of Sciences is a holder of the HR Excellence in Research Award. It is awarded by the European Commission to institutions which put significant effort into improving their HR strategy and ensuring professional and ethical working conditions.

The ELIMAIA ion acceleration user beamline has been recently installed along with its key system, the ELIMED ion beam transport and dosimetry section. The mission of ELIMAIA (ELI Multidisciplinary Applications of laser-Ion Acceleration) is to provide stable, fully characterized and tunable beams of particles accelerated by multi-PW lasers and to offer them to the user community for multidisciplinary applications. Particularly, within the IAL (Ion Acceleration by Laser) R&D project, ELIMAIA will be used to investigate biological and potential medical applications.

For our Monte Carlo simulation group, we are seeking a suitable candidate as:

Monte Carlo specialist (IAL)

Responsibilities (including but not limited to):

- software development for Monte Carlo simulations, especially in the field of radiobiology with laser accelerated ion beams (GEANT4 toolkit)
- use and upgrade of the existing GEANT4-based software for modelling the laser driven ion beamline for multidisciplinary applications
- design and maintenance of an efficient, reusable, and reliable C++ code
- characterization of radiation fields
- close and active cooperation with collaborating national and international Institutes
- supervision of students (for a senior appointment)

Required qualifications:

- relevant university degree or research experience in nuclear, particle, or radiation physics, or engineering
- advanced knowledge of GEANT4 Monte Carlo transport code
- advanced knowledge of C++, with fair knowledge of the language specifications
- analytical and computational skills
- experience working with revision control systems
- ability to proficiently work both independently and in a team
- ability to present and document the work done
- fluency in English (both oral and written)
- availability to travel as required by necessity
- experience working in international environment

Desired additional qualifications:

- knowledge of the latest version of C++11 standards
- experience with Geant4DNA
- experience with dosimetry and microdosimetry
- knowledge of radiobiology
- knowledge of other radiation transport codes

We offer:

- the opportunity to participate in this unique scientific project
- competitive and motivating salary
- flexible working hours
- nice working environment
- career growth
- lunch vouchers, pension contribution and 5 sick days
- support of leisure time activities

Interviews will begin immediately and the position will stay open until filled.

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, +420 - 601560322). Please include the following text in your cover letter, to allow us to process your personal details:

Information regarding the personal data processing and access to the personal data at the Institute of Physics of the Czech Academy of Sciences can be found on: <https://www.fzu.cz/en/processing-of-personal-data>