

ELI (Extreme Light Infrastructure) is a multi-site European Research Infrastructure Consortium devoted to scientific research using new generation lasers. ELI-Beamlines is one of the sites and is currently being constructed in Dolní Břežany (on the outskirts of Prague, Czech Republic). The commissioning of the facility is just starting. ELI-Beamlines will deliver ultra-short (few tens of femtoseconds), ultra-intense laser pulses in an unprecedented combination of high intensity and repetition rate. It will make available a unique combination of synchronized beams from the primary lasers and secondary ionizing radiation sources for a wide range of interdisciplinary applications in physics, chemistry, medicine, biology and material science.

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:

## Researcher – Monte Carlo specialist

### 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
- career growth, professional education
- 5 weeks of holidays
- pleasant work environment
- other benefits

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](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:

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>