



**The Extreme Light Infrastructure ERIC (ELI ERIC)** is the world's largest and most advanced high-power laser research infrastructure. As an international user facility dedicated to multi-disciplinary science, ELI provides access to world-class high-power, high-repetition-rate laser systems and enables cutting-edge research, as well as breakthrough technological innovations. The ELI ERIC operates as a single multi-site organization with two complementary facilities specialized in different fields of research with extreme light: ELI Beamlines in Dolní Břežany (Czech Republic) and ELI ALPS in Szeged (Hungary).

**ELI Beamlines Facility** operates four cutting-edge high-power femtosecond laser systems reaching unprecedented intensities. The operational laser systems make unique femtosecond sources of X-rays and accelerated particles available to scientific users for pioneering research in physical, chemical, materials, life and medical sciences as well as physics of dense plasmas, warm dense matter, and laboratory astrophysics. The ELI Beamlines Facility employs over 350 researchers, engineers and other professionals from more than 38 countries.

**Do you want to see what it takes to be a part of a scientific team and get a taste of what it means to be a scientist?**

The department of Radiation Physics and Electron Acceleration within the Electron Acceleration group team dealing with developing new Laser Wakefield Electron accelerators (LWFA) and Radiation to Electronics Effects (R2E) research. The LWFA is a technique, in which electrons are generated and accelerated to GeV range energies by focusing femtosecond (fs) class lasers with up to pettawatt (PW) power on the gas target. Radiation produced by this acceleration technique is characterized by ultra-short bunch duration (fs range) and ultra-high dose rates (GGy/s peak value). Dosimetry of ultra-high peak dose rates radiation deposited in ultra-short radiation pulses currently is a scientific challenge. RADFET device is a discrete p-channel MOSFET optimized for the radiation sensitivity and is one of the industry standard dosimetry methods and reference for R2E. However, this type of dosimeters required verification for LWFA electron sources.

You will get the chance:

- to practice yourself in design and construction project of novel LWFA electron accelerators driven by the world leading laser systems
- to gain an experience with the design of devices that fulfill tough requirements of cutting-edge technologies

In our team we are offering an

**Internship on  
Development of RadFET dosimeter reading system  
(IN-25-2023)**

### What are you going to do?:

The reference IV – curve of the RadFET detector depends on the absorbed radiation (Total ionizing dose). Different detector connection is required for the irradiation and reading modes.

The candidate is expected **to develop and construct a prototype of the device capable of acquiring IV - curve of the MOSFET (30 uA current and 25 V voltage range)** according to the conventional connection scheme and switch from exposure to reading mode. The task complexity and measurement automation level can be adjusted according to the candidate qualification.

### Our requirements:

- Bc. level or higher education in electrical engineering or physics
- Basic knowledge and skills in design of analogue and digital electronic and/or printed circuit boards (PCB). Basic experience with electronic design automation software (KiCAD, Autodesk Eagle, DipTrace)
- Experience with programming microcontroller/ADC boards (e.g. Arduino) and/or dosimetry or radiation sources characterization and/or R2E is an advantage

### Internship's duration:

- Expected duration is 2-3 months, within the period July-November (start is possible from the 1st or 15th of the month).

### Our offer:

- Unique opportunity to turn theory into practice within an international research institution in the field of laser technology
- Dedicated mentor
- Specific topic scope – possibility to work on exciting projects within an established team
- Final presentation: Intern conducts final presentation regarding their internship. The event always takes place during the last week of a month when the intern is leaving.
- Completion certificate
- Events for Interns
- Financial remuneration of 170 CZK per hour on an agreement to complete a job (DPP)
- We do not cover accommodation and/or travel and refreshment expenses
- The starting date is either on the 1<sup>st</sup> or in particular cases the 15<sup>th</sup> of the month
- Applicants from 3rd countries, outside of EU must obtain necessary visa and working permits prior to the start of their internship.



**Shoot your shot and apply!**

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Application containing your CV and the topic you are applying for with a brief motivation letter should be sent to **Ms. Andrea Füst** via [andrea.furst@eli-beams.eu](mailto:andrea.furst@eli-beams.eu)

Information on the processing of personal data can be found on:  
<https://www.eli-beams.eu/informace-o-zpracovani-vasich-osobnich-udaju-gdpr/>  
We are an equal opportunity employer.

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