At the **Faculty of Nuclear Science and Physical Engineering (FNSPE)**, Department of Materials, group of Prof. Miroslav Karlík, we have a job opportunity for a

Ph.D. junior researcher (1),

in advanced testing of mechanical, fracture, electric, and magnetic properties of ferroic materials. The position, within the European project "Ferroic multifunctionalities", is offered for 45 months, starting on October 1st, 2024.

Background

The phase transformations make ferroics exhibit peculiar behavior and are often difficult to capture by standard testing methods. Several unique testing methods are available at FNSPE and CTU to study the properties of ferroics using small as well as standard specimens with a focus on fracture and fatigue behavior. The team of Experimental Mechanics Lab has long-term experience tailoring the testing methodology towards unusual materials.

Job content

The Ph.D. study will be devoted to assessing the applicability of state-of-the-art testing methods to describe the properties of ferroics and observe the underlying processes with a focus on phase transforms including:

- fatigue degradation of the material and its relation to cyclic R curve (CPCR, annealing) and magnetic properties,
- the applicability of DIC and instrumentation-based approaches to use J-integral as the crack driving force,
- damage effect of internal dissipation at cyclic deformation – the role of temperature and their gradients.

The student will receive significant experience and in-depth insight into:

- advanced testing of mechanical, fracture, and electromagnetic properties,
- material characterization and fractography,
- experimental mechanics, i.e. the design of special testing equipment.

Profile

- master's degree in materials science or mechanical engineering,
- motivation for design and further development of testing methods as well as actively using them,
- basic knowledge of fracture mechanics and physical metallurgy,
- good communication skills and a positive attitude.

The remuneration will be 35 000 CZK/month + a Ph.D. stipend of 12 000 CZK/month (in total approx. 1860 EUR, a good income for a student in the Czech Republic with quite low living costs).

Applicants are requested to send their application materials (a motivation letter, CV, transcripts, and the name of a professor with whom the application can be consulted) to Prof. Miroslav Karlík, E-mail: Miroslav.Karlik@fjfi.cvut.cz. The deadline for applications is **30th June 2024**.