



Research Fellow position in the Terahertz Sources Group at ELI ALPS

The international laser user facility Extreme Light Infrastructure (ELI) is one of the world's largest advanced infrastructures in high-power, high-intensity, and short-pulse laser systems. The lasers at ELI produce ultrashort pulses of photons, electrons, protons, and neutrons and enable the investigation of light–matter interactions at the highest intensities and shortest timescales for a broad scope of fundamental and applied research. ELI is established as a European Research Infrastructure Consortium (ERIC), which now operates two facilities: ELI ALPS in Szeged, Hungary and ELI Beamlines near Prague, the Czech Republic. The ELI Attosecond Light Pulse Source (ELI ALPS) is a unique attosecond facility; it provides ultrashort light pulses from terahertz (THz) to x-ray frequencies with high repetition rates for users and developers.

The Terahertz Sources Group at ELI ALPS develops and operates strong-field THz sources, spectroscopic tools, and metrology for the investigation of THz-field-driven dynamics in matter. We study a broad range of materials and structures exposed to extreme THz fields, electron emission from surfaces and atoms driven/assisted by THz waveforms, and explore the biological effects of intense THz radiation. The nonlinear spectroscopic techniques include pump–probe schemes with THz, optical, and extreme ultraviolet (XUV) pulses. The group is responsible for user service and scientific applications at the Nonlinear Terahertz Spectroscopy Facility (NLTSF), the High-Energy Terahertz (HE-THz) facility, and for the development of various experimental stations, including THz pump—attosecond XUV probe.

What you will do:

The successful candidate will be responsible for the implementation of the strong-field THz programme at ELI ALPS. The responsibilities include interacting with external and internal users and providing user support at the THz beamlines and experimental stations; contributing to, or leading the development and operation of the pump–probe experimental stations; contributing to, or leading in-house research projects, carrying out experiments, analyzing the results, and contributing to publications. He/she will have the possibility to conduct own research, aligned with the research directions of the group, upon successful ELI ERIC beamtime or research grant application. A vision of projects that could be carried out with the available infrastructure is expected.

**What we expect:**

We are looking for a skilled and enthusiastic researcher with expertise in one or more of the following fields: THz science and technology, high-harmonic generation and attosecond physics, materials science, lasers and nonlinear optics, or other related areas. We expect candidates with a PhD in physics, chemistry, or other related science or engineering fields. Applications of candidates who seek to pursue PhD studies is also encouraged. The successful candidate should be able to work in a team, as well as independently. Good English communication skills, verbal and written, and excellent interpersonal skills are requested.

The following qualifications are of advantage:

- hands-on experience with ultrashort lasers and optics;
- good programming skills;
- experience with data analysis and simulation tools;
- experience in leading a research project or task;
- experience in supervising students;
- experience in projects where people from different scientific disciplines, engineering, and IT work together.

What we will provide:

We offer an exciting scientific environment in a new European research institute. The worldwide unique laser-based scientific infrastructure of ELI enables research in a wide range of scientific areas. Close interaction with a growing user community and cooperation partners from all over the world provides excellent possibility for collaborations. We offer a challenging and versatile job in a friendly international team with career opportunities, competitive salary in regional comparison, full-time, fixed-term employment, which can be extended, cafeteria and private health insurance benefits, and a family-friendly workplace. The job location is Szeged, Hungary. The city of Szeged offers pleasant living conditions and leisure opportunities.

Your application:

If you are interested in the position please upload your motivation letter, CV, and publication list to our Career Site at www.eli-alps.hu/en/Career-1. The application is open until the position is filled.



Preferred starting date: 1 February 2027.

For further information on ELI ALPS, please visit the www.eli-alps.hu website. For position-related information, please contact the leader of the Terahertz Sources Group, dr. József Fülöp (email: Jozsef.Fulop@eli-alps.hu).

Extreme Light Infrastructure ERIC / ALPS Facility/ ELI Beamlines

The Extreme Light Infrastructure (ELI ERIC) is the world's largest high-power laser research facility, offering cutting-edge lasers for groundbreaking science and innovation. Operating across two sites – ELI Beamlines in the Czech Republic (near Prague) and ELI ALPS in Hungary (Szeged) – employing a diverse team of experts from around the globe.

ELI ALPS operates state-of-the-art laser systems and secondary sources to deliver ultrafast light pulses, including attosecond pulses, and particle beams for pioneering research in physics, chemistry, materials and life sciences. Its advanced systems enable the exploration of ultrafast electron dynamics and complex molecular processes.

ELI Beamlines operates four advanced femtosecond laser systems, delivering unmatched intensities. These lasers drive unique X-ray and particle sources for groundbreaking research in physics, chemistry, materials, life sciences, and astrophysics.