Researcher position is available in the MIR HE ATTO team of ELI ALPS

ELI ALPS (https://www.eli-alps.hu/), part of the Extreme Light Infrastructure (ELI), is a world-leading research facility in Szeged, Hungary, dedicated to studying ultrashort high energy processes. As one of the three pillars of this European megaproject, ELI ALPS provides cutting-edge ultrashort light sources, including attosecond XUV and X-ray pulses for the scientific community, enabling groundbreaking research in light–matter interactions, valence and core electron science, materials science, 4D imaging, and various biomedical applications.

We are looking for an enthusiastic and skilled researcher with expertise in high-harmonic generation (HHG)/attosecond physics/atomic, molecular and optical (AMO) physics (or closely related disciplines) to participate in various projects managed by the MIR HE ATTO team of ELI ALPS. In addition to contributing to designing, building and commissioning various pieces of equipment, the candidate is also expected to take part in user support during the use of beamlines and endstations in this permanent position.

Description of the MIR HE ATTO Group

The MIR HE ATTO Group of ELI ALPS maintains a gas-based high harmonic generation beamline driven by the high energy mid infrared laser, 1 kHz, > 10 mJ, < 120 fs. The beamline is dedicated to the study of ultrafast phenomena in the water window spectral range by generating soft X-ray (SXR) radiation and exploit them in SXR-MIR pump–probe experiments with attosecond time resolution, which has so far been achieved only in a few laboratories worldwide.

What you will do:

The work tasks of the Research Fellow to be hired in the MIR HE ATTO team include but are not limited to the following:

- Participating in the maintenance and operation of various pieces of equipment for ultrafast physics studies in gas, liquid and condensed phases on the MIR HE ATTO beamline.
- Provision of user support on the above-mentioned research tools.
- Participating in the design and construction/assembly of additional group-managed equipment.
- The candidate will have the possibility to conduct own research when beamtime is available.

What we expect:

For a junior position, the candidate should hold at least an MSc in physics, or in one of the following disciplines: chemistry, laser engineering, optics, photonics, high harmonic generation (HHG), attosecond physics, and atomic, molecular and optical (AMO) physics (or closely related disciplines) or any other

related scientific field. To be considered for a senior position, the candidate must have appropriate experience and should hold a PhD in physics, chemistry or any other related scientific field. The candidate is expected to have a vision of projects that could be implemented using the available infrastructure.

Skills and abilities:

- Exposure to HHG, attosecond physics, AMO physics or related research fields.
- Experience with ultrafast (femtosecond) lasers and ultrafast optics.
- Experience in vacuum handling.
- Experience in building optical setups with mid infrared lasers.
- Ability to work both independently in the lab and as part of a team.
- Good written and oral communication skills in English.

Additional preferred qualifications:

- Good programming skills (Python and/or Matlab).
- Experience with Mid IR lasers and ultrafast optics.
- Ability to lead a (research) project alone.
- Experience in projects where people from different disciplines (physics, engineering, IT) work together.

Job location: Hungary, Szeged

Start time: As soon as reasonable

Why join us?

- **International collaborations:** Our team frequently engages in international scientific collaborations with both experimental and theoretical areas, offering excellent opportunities to expand your global network and engage in pioneering research with experts in the field.
- **Cutting-edge facility:** ELI ALPS is part of the Extreme Light Infrastructure (ELI) project, providing access to some of the most advanced research tools in the world. ELI ALPS provides cutting-edge ultrashort light sources, including attosecond XUV and X-ray pulses, for the scientific community.
- **Quality of life:** We offer very competitive salaries in regional comparison, and the city of Szeged provides pleasant living conditions.

Apply now:

For further scientific elaboration and informal discussion on this positions please contact Dr. Subhendu Kahaly at subhendu.kahaly@eli-alps.hu and Dr. Zsolt Diveki at zsolt.diveki@eli-alps.hu with your CV and motivation letter.

If you are interested in the position, please upload your CV (including a list of publications and at least two references) and motivation letter merged into a single PDF file to our Career Site at https://www.eli-alps.hu/en/Career-1 .

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) – it employs a diverse team of experts from around the globe.

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.

ELI ALPS operates lasers and secondary sources to deliver ultrafast light pulses (including attosecond pulses) for pioneering research in physics, chemistry, materials and life sciences. Its advanced systems enable exploration of ultrafast electron dynamics and complex molecular processes.