

ELI-HU Research and Development Non-Profit Limited Liability Company is looking for a

**DIVISION HEAD FOR THE PARTICLE AND TERAHERTZ SOURCES DIVISION
OF THE ELI-ALPS RESEARCH INFRASTRUCTURE**

The ELI Attosecond Light Pulse Source (ELI-ALPS)

The first civilian large-scale research facility based on high-power lasers, the Extreme Light Infrastructure (ELI), is to be constructed through an international cooperation at three locations with coordinated management and research strategy. The Attosecond Light Pulse Source (ALPS) research centre to be built in Szeged (Hungary) will be devoted to the study of ultrafast dynamics on the femto/attosecond timescale in atoms, molecules, plasmas and biological samples.

The primary mission of the ELI-ALPS research facility is to make a wide range of ultrashort pulse light and particle sources accessible to the user groups of the international scientific community, with special consideration to the coherent extreme-ultraviolet (XUV) and X-ray radiation as well as attosecond pulses. The secondary mission of the facility is to contribute to the scientific and technological developments of high average power high peak power lasers.

The ELI-ALPS infrastructure will provide primary laser pulses that will drive secondary sources offering a unique combination of light- and particle pulses for basic research and industrial applications. The following outstanding characteristics of the synchronized sources will be available for numerous application areas:

- single- and few-cycle pulses in the spectral areas ranging from terahertz/infrared up to the petahertz/ultraviolet, emitted at 10 Hz, 1 kHz and 100 kHz repetition rates;
- attosecond extreme-ultraviolet, soft X-ray pulses with kHz repetition rate and up to millijoule pulse energy over the next decade;
- sub-femtosecond hard X-ray pulses, reaching several keV photon energy;
- laser pulses with controlled shape and phase reaching ultra-relativistic pulse intensities with a few Hz repetition rate.

The source development will be implemented in two stages. Part of the primary sources is expected to be operating with modest pulse peak intensity by the first half of 2016. Secondary light pulse generation as well as pilot experiments are planned to start in 2016. The duty amps will be delivered and the final design parameters will be realized by 2017. Full operation of the facility is foreseen for 2018.

Main responsibilities of the Division Head of the Particle and Terahertz Sources Division

The Division Head is expected to be the driving force in the implementation of the laser-based particle acceleration and THz secondary sources, the definition/selection of the research topics/activities and the formation/coordination of the research groups of the division that will pursue research in a broad spectrum of fast particle and laser applications

at ELI-ALPS. He/she is expected to be an experienced scientist of high international reputation, leader in one or more of the following fields: laser plasma physics and relativistic interaction, laser based ion and electron acceleration, laser based THz emission, ultrafast phenomena, high resolution time and frequency domain spectroscopy, strong field interactions, non-linear pulse propagation, AMO physics, solid state/surface physics, and material science. His/her task would be to shape the scientific activity of the division, directing the already existing three groups, as well as recruit further 1-2 group leaders and 6-10 staff members, and coordinate the design and implementation of the related particle and terahertz sources, by the end of 2017. If needed, a part time employment is possible during the implementation phase, while the successful candidate will be encouraged to take on full employment at ELI after 2018, if offered.

He/she will work in close connection with the Division Heads of the Primary Sources, the Attosecond Sources, the Attosecond and High Field Science, and the Scientific Application divisions as well as with the Group Leaders of the Particle and Terahertz Sources division; will make every effort to ensure the short- and mid-term scientific progress of the given field; will be working in close connection to the Scientific Chief Advisor in working out the mid- and long-term scientific strategy of the Facility. In the implementation phase, he/she will advise the Research Technology Director on source development, beam transfer, and further technological issues related to the implementation of the target areas. He/she will lead larger scale scientific projects both within the Facility and in collaboration with the other ELI facilities as well as with external user groups. His/her main responsibilities and tasks in detail, are:

- advising and supporting the Scientific Management in the mid- and long-term planning of overall strategic scientific and research directions of the Facility;
- taking part in the annual planning of the R&D activity of the facility;
- suggesting novel long term (10 ys) scientific activities of the infrastructure;
- submitting internal and external proposals for mid-term (3-5 ys) research projects;
- leading research projects with internal staff as well as cooperating with external users and collaborators;
- make every effort in ensuring the international scientific visibility of the research to be conducted in the division;
- representing the science to be conducted in ELI-ALPS internationally;
- cooperation with and advising the other division heads and group leaders;
- promoting the research and the future access opportunities of ELI-ALPS in the scientific community;
- in the implementation phase, working close to the Research Technology Director on the technological and financial resources necessary for the implementation of the target areas and end stations of ELI-ALPS.

Technical skills:

- extensive knowledge and ongoing scientific activity in experimental particle acceleration and/or terahertz sciences and technology relevant to ELI-ALPS;
- familiarity with the technology of the primary sources
- experience in the definition and leadership of research activities;
- experience in presenting and promoting research projects and results;
- past involvement (or at least good knowledge) in the definition of student training programs or in higher education;
- outstanding list of publications /citations, high level grant record;

- excellent proficiency in English. Fluency in at least another European language would be advantageous.

Management skills

- managerial experience in multi-party R&D projects,
- experience in scientific network and/or collaboration management.

Leadership skills

- communication skills,
- negotiation skills,
- networking capabilities,
- experience in team building and supervision,
- organizational skills,
- teaching experience.

Schedule:

- Application deadline: 30th September, 2015
- Earliest start of the employment: 1st November, 2015
- Latest start of the employment: 1st January, 2016

Further information:

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| • In science related matters: | Dr. Dimitris Charalambidis
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| • In employment matters: | Ms. Ágnes Hajnalka Rosta
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If you are interested in the position and meet the required criteria, please submit your application along with your detailed CV and publication list in English to job@eli-alps.hu.