

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

SCIENTIFIC DIRECTOR

The Hungarian ELI: the Attosecond Light Pulse Source (ALPS)

The first civilian large-scale research facility based on high-power lasers, the Extreme Light Infrastructure (ELI), is to be constructed with international cooperation at three locations with a coordinated management and research strategy. The Attosecond Light Pulse Source (ALPS) research centre to be built in Szeged (Hungary), will be devoted to study the electron 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 ultrafast light sources accessible to the user groups of the international scientific community, with special consideration to coherent extreme-ultraviolet (XUV) and X-ray radiations as well as to attosecond pulses. The secondary mission of the facility is to contribute to the scientific and technological development necessary for the generation of 200 PW peak intensity pulses.

The ELI-ALPS infrastructure will provide primary laser pulses and apply them to generate a unique combination of secondary light- and particle pulses for fundamental scientific research and industrial applications. The following outstanding characteristics of the synchronized source parameters will be very attractive for numerous application areas:

- i. Single- and few-cycle pulses starting from the spectral range of terahertz/infrared up to the range of petahertz/ultraviolet, with 10 Hz to 100 kHz repetition rate;
- ii. Attosecond extreme-ultraviolet, soft X-ray and hard X-ray pulses with kHz repetition rate, with up to millijoule pulse energy;
- iii. Shorter-than-femtosecond hard X-ray pulses, reaching the photon energy of several 1keV;
- iv. Controlled ultra-relativistic pulse shapes with ultra-high contrast with a few Hz repetition rate;

The scientific technology will be implemented in two stages. Part of the primary sources will be operating with a modest pulse energy and somewhat longer pulses by the end of 2015. Secondary light pulse generation as well as pilot experiments will be started early 2016. The duty amps will be delivered and the final design parameters will be realized by 2017. The full operation of the facility is starting in 2018.

Main responsibilities of the Scientific Director

In order to ensure the timely implementation of the facility as well as the planned start of operation, the post of Scientific and Technology Director is split during the implementation period. The Research Technology Director is responsible for the implementation of the scientific and technological equipment. The Science Director (SD) will serve as the main person in charge of initiating and managing the scientific coordination activities of the ELI-ALPS. The SD shall determine the scientific strategy of the facility, act towards attracting and establishing a user community for ELI-ALPS, and building up the Science Division from a large number of scientists active in experimental and theoretical atto-, material-, biomedical sciences. He/she will carry out his/her activities in close coordination with the Managing Director, the Research Technology

Director (RTD) and the project managers of the ELI facility in Szeged and will be in close relation with other ELI facilities. The main responsibilities and tasks in detail are:

- 1) Elaborates and suggests novel strategic scientific and research directions to the Scientific Advisory Committee
- 2) Execution of the scientific program of ELI-ALPS.
- 3) Representation of the science to be conducted in ELI-ALPS in the international scene of the scientific fields of ELI-ALPS.
- 4) Representation of the science to be conducted in ELI-ALPS within the ELI-Delivery Consortium.
- 5) Determines the competence and skill of human resources for the Science Division of ELI-ALPS, responsible for in-house research activities.
- 6) Act towards building up and leading the Science Division of ELI-ALPS with competent scientists, who are able to fulfil the scientific mission of the infrastructure and also provide scientific support to the users.
- 7) Support the promotion of the scientific opportunities of ELI-ALPS to the research community and of the future access opportunities to the facility.
- 8) Co-ordinates with the Research Technology Director in managing the scientific and technical aspects of implementation, making decisions in related issues, especially related to secondary sources, target areas and preparation labs.
- 9) Communicates with the other ELI pillars in scientific programme issues.
- 10) In collaboration with the Research Technology Director, recommends appropriate measures and strategies for the optimisation of the use of the technological, human, and financial resources necessary for the implementation and future operation of ELI-ALPS.

Technical skills

- Extensive knowledge and on going scientific activity in experimental attosecond science and technology relevant to ELI-ALPS;
- Familiar in the technology of the other secondary sources relevant to ELI-ALPS;
- Knowledge and experience in the operation of laser based research facilities and in access management.
- Excellent understanding of the European technological scene in the field of laser and photonics (references from the R&D sector at the European level).
- Experience in the development and management of technological collaboration between research organisations and with industry.
- Past involvement (or at least knowledge) in the definition of training programs.
- Outstanding list of publications, excellent high level grant record.
- Excellent proficiency in English and fluency in at least another European language.

Management skills

- Managerial experience/knowledge in the following fields: large-scale international R&D projects, tertiary education, access management
- Managerial experience in large-scale facility developments
- Knowledge in quality management
- Experience in community or collaboration management

Leadership skills

- Charisma
- Organisational skills
- Communication skills
- Negotiation skills
- Networking capacities

- Experience in team, and organisation building
- Teaching experience

Schedule:

- Application deadline: 8th July, 2013.
- Earliest start of the employment: 1st August, 2013.
- Latest start of the employment: 1st November, 2013.

Further information:

- In employment / management matters: Mr Lorant Lehrner:
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- In research / technology related matters: Dr Karoly Osvay:
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- In legal matters: Dr Viktoria Tölgyesi:
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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 in English to Monika.Barany@eli-alps.hu