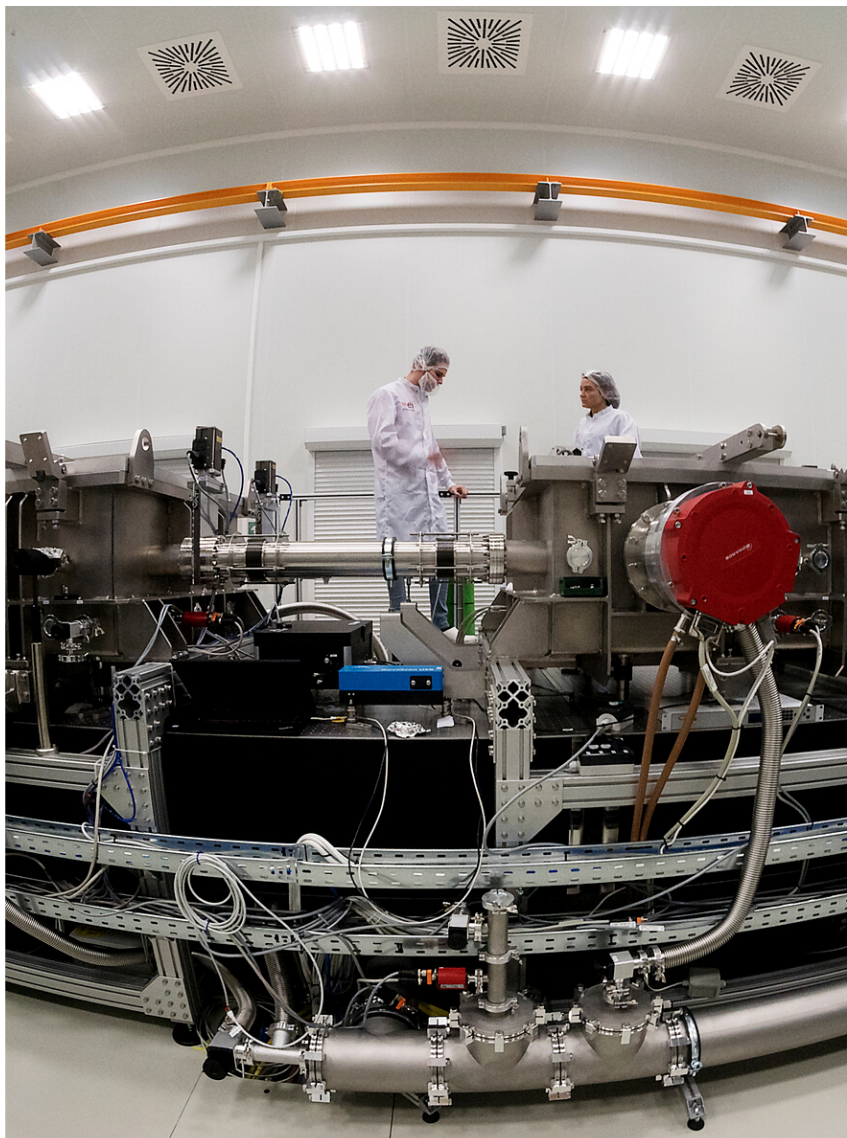


ELI NATIONAL LABORATORY

TOWARDS THE SHARP END OF ATTOSCIENCE

The primary mission of the ELI Attosecond Light Pulse Source (ELI ALPS) research infrastructure, which was constructed in Szeged, Hungary, is to make accessible a wide array of sources producing ultrashort light pulses – especially coherent extreme ultraviolet (XUV) and X-ray radiation and attosecond pulses – for diverse user groups of the international scientific community. The other focal point of the facility's mission is to further the scientific and technological development of high peak intensity and high average power lasers.



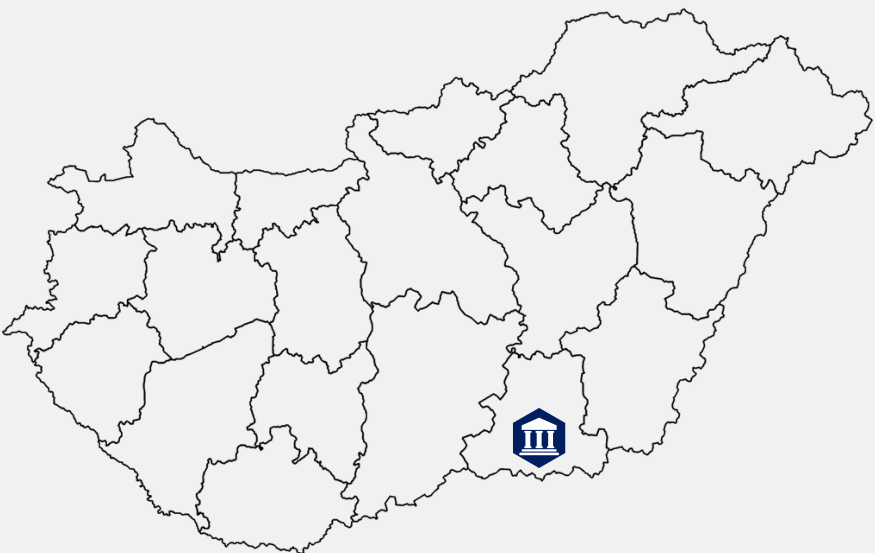
MAIN RESEARCH AREAS

- Attosecond technology and applications
- Ultrafast processes
- Interactions of ultraintense laser fields and matter: plasma physics, laboratory astrophysics
- Biological imaging
- Medical science applications
- Energy research – from solar panels to artificial photosynthesis
- High energy photonics
- Information technology, materials science and nanoscience
- THz technologies and applications



IMPLEMENTER:
ELI-HU Nonprofit Kft.

PLACE OF IMPLEMENTATION: Szeged



CONTACT INFORMATION:



eli-alps.hu



info@eli-alps.hu

BENEFITS TO BE EXPECTED FROM LABORATORY RESEARCH

- The high power attosecond pulses of ELI ALPS enable the investigation of the electron dynamics of complex systems with attosecond and picometre resolution, as well as the creation of novel, long-awaited opportunities for researchers engaged in nuclear and molecular physics, solid matter processes, nanoscience and radiobiology.
- The combination of high XUV/X-ray pulse energies with the high repetition rate of the sources allows scientists, for the first time ever, to study attosecond dynamics with XUV pump/XUV probe pulses in combination with coincidence detection techniques, and thus provides ideal tools for experiments exploring light-matter interactions to the fullest extent possible.
- In addition to the attosecond XUV/X-ray pulses, ELI ALPS provides high power, few-cycle long, synchronized pulses in a frequency range from the terahertz (microwave) up to the petahertz (ultraviolet), with controlled electromagnetic space. These synchronized ultrashort, ultraintense pulses allow for reaching an unprecedented level of control over microscopic processes, and give real-time insight into a wide range of non-equilibrium states.
- Thanks to the unique combinations of the properties of its equipment, ELI ALPS contributes to the exploration of the dynamics of the microcosm, to the control over elemental processes, as well as to the development of IT, biological and medical technologies.

THE PROFESSIONAL TEAM

Prof. Gábor Szabó, Managing Director

Full member of the Hungarian Academy of Sciences, two-term rector of the University of Szeged, doctor of physical sciences, author of nearly 200 publications and dozens of patents.

Dr. Katalin Varjú, Science Director

Doctor habilitated in physics; her main fields of research is nonlinear optics, generation of high harmonics in gases and the generation of attosecond pulses.

POSSIBLE PARTNERSHIPS

ELI ALPS Research Institute makes accessible a wide array of light and particle sources producing ultrashort, high power and high repetition rate pulses for the user groups of the international scientific community.

In the current phase of the project, ELI ALPS invites user proposals for projects supporting the commissioning of some of the research infrastructure, and for scientific experiments on other pieces of equipment. Grant holders are also welcome to apply.

TARGET GROUP

With its state-of-the-art research infrastructure and outstanding professional support ELI ALPS provides unique research opportunities to the international research community working in related disciplines.

PROFESSIONAL CONTACT

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