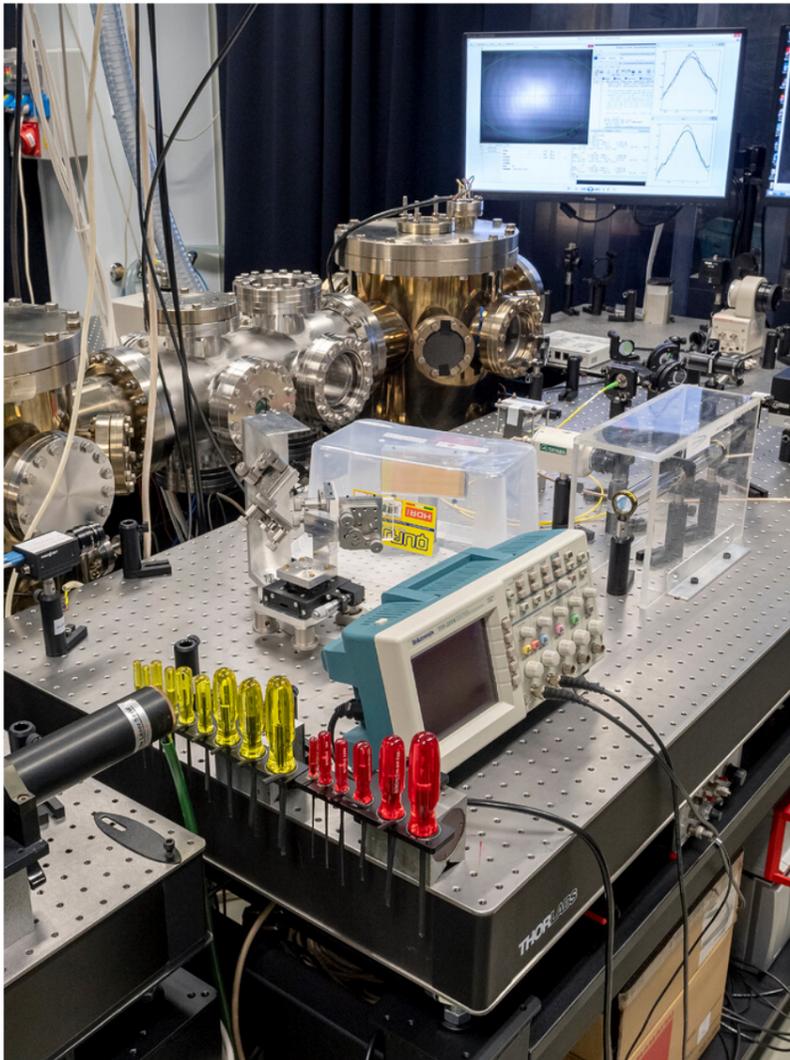


RESEARCH LABORATORY FOR NANOPLASMONIC LASER FUSION

NANOFUSION: UNLOCKING CLEAN ENERGY

One of the keys to the development of a growing human population is efficient, abundant and environmentally friendly energy production. Of the physical processes known today, nuclear fusion may be the most suitable in the long term. The Research Laboratory for Nanoplasmonic Laser Fusion is conducting ground-breaking research in Hungary, which will make nuclear fusion even more efficient and economical, thus serving the growing energy needs of mankind.



MAIN RESEARCH AREAS

- Nanoplasmonics
- Nuclear physics
- Spectroscopy
- Quantum optics
- Non-equilibrium plasma fusion

IMPLEMENTER:

Wigner Research Centre for Physics

PLACES OF IMPLEMENTATION: Budapest, Debrecen,
Szeged



BENEFITS TO BE EXPECTED FROM LABORATORY RESEARCH

New knowledge in the field of plasmonics and nanotechnology, new techniques for the preparation of suitable targets, development of laser spectroscopy.

Experimental understanding of the energy production reactions of nuclear light isotope fusion in a non-equilibrium plasma environment.

Developing efficient and clean fusion power generation that can be deployed on a transportable power plant scale.

THE PROFESSIONAL TEAM

PARTICIPANTS

- József Péter Lévai (Director General of the Wigner FK, host institute)
- Tamás Sándor Biró (Wigner FK RMI, project leader)
- Norbert Kroó (Wigner FK SZFI, prof.em, scientific advisor)
- László Csernai (Wigner FK RMI, Univ. Bergen, prof.em, scientific advisor)
- Anett Szeledi (Wigner FK, project assistant)
- Csaba Horváth (contact person ELKH)
- Zsuzsa Steinczinger (ELKH contact person)
- Mária Csete (SZTE Quantum Optics, Associate Professor, Head of Theoretical Group)
- Attila Bonyár (BME Electrotechnics, Associate Professor, Head of Material Preparation Group)
- Péter Rácz (Wigner FK SZFI, head of laser experimental group)
- Miklós Veres (Wigner FK SZFI, head of Raman spectroscopy group)

POSSIBLE PARTNERSHIPS

Already in the preparation phase of the project we cooperate with national partners backed up by the Wigner RCP-s own resources. The drafters of the basic idea owning a patent are affiliated to three different institutes: Norbert Kroo is professor emeritus of the Wigner RCP, Laszlo Csernai is same at the University of Bergen, Norway, Istvan Papp is a young postdoc at the University Babes-Bolyai in Cluj, Romania. In the preparation of nanoparticles we rely on associates of the Center for Energy Research and the Electrotechnology Faculty at BME (Technical University Budapest). Further cooperating partners expressed their interest in participation from the US: Csaba Toth from the Lawrence Berkeley National Laboratory and Denes Molnar from teh Purdue University. A shorter cooperation with Professor Johann Rafelski, professor emeritus of the Arizona State University, is financed by the Fulbright Foundation for two months distributed over 2 years, also promises to be fruitful: he sees some further explorable possibilities in the application of polarised light.

STAFF

- István Papp (WFK RMI)
- Emese Tóth (SZTE OPT)
- Melinda Szalóki (DE FOK)
- Péter Petrik (EK)
- Miklós Kedves (WFK RMI)
- Márk Aladi (WFK RMI)
- Román Holomb (WFK SZFI)
- István Rigó (WFK SZFI)
- Alexandra Borók (BME ETT)
- Dávid Vass (SZTE OPT)
- Olivér Fekete (SZTE OPT)
- András Szenes (SZTE OPT)
- Ágnes Nagyné Szokol (WFK SZFI)
- Gábor Galbács (SZTE CHEM)
- Archana Kumari (WFK RMI)

TARGET GROUP

- Research groups or enterprises, interested in energy production, nuclear fusion, laser optics, plasmonics and nanotechnology.
- University students preparing for participation in research.

PROFESSIONAL CONTACT

ANETT SZELEDI
Project Assistant



szeledi.anett@wigner.hu



+36 1 392 2222 / 1425