CENTRE FOR ENERGY RESEARCH

https://www.ek-cer.hu/en/home/

- **Located in Budapest**
- **Founded in 2012**
- **Member of the Eötvös Loránd Research Network**
- **Hungarian Academy of Sciences Centre of Excellence**
- **Institutional memberships in 33 international organizations**
- **321 employees of which 150 researchers**
- **221 publications (2019)**
- **8819 citations (2018)**
- **Impact Factor: 487.3**

The **Centre for Energy Research** is open to further joint research activities at national and international level. For any additional information on possible international cooperation please contact us.

- Facebook: https://www.facebook.com/EnergiatudomanyiKutatokozpont
- LinkedIn: https://www.linkedin.com/company/centre-for-energy-research

The **Centre for Energy Research (EK)** was established in January 2012 on the basis of two former independent institutions, the Atomic Energy Research Institute, and the Institute of Isotopes. In 2015 the Institute of Technical Physics and Materials Science became part of the EK.

Today the Centre consists of three main institutes:

- Institute for Atomic Energy Research
- Institute for Energy Security and Environmental Safety
- Institute of Technical Physics and Materials Science

The priority target areas of the Centre for Energy Research are as follows:

- basic, applied and development research in accordance with the provisions of the Atomic Energy Act
- safety analysis of nuclear power plants
- basic, applied and development research in the field of renewable energy sources
- environmental protection systems
- research on functional materials
- operation of the Budapest Research Reactor

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Its **mission** is to pursue international scientific research in the field of materials science in order to continuously further Hungarian nuclear safety expertise in the following areas:

- Technical and scientific support for the safe operation of nuclear power plant units in Hungary: deterministic safety analysis, radiation damage, development of reactor diagnostics
- Research on the interaction between radiation (neutron, gamma and electron radiation) and matter, exploration of the biological effects of low-dose radiation
- Development and application of nuclear analytics procedures; radiochemistry, radiation protection and nuclear protection
- Development of nuclear fusion-based nuclear power generation processes, research and development of related technological and physical issues
- Development of space weather measurement systems for monitoring the composition and spectrum of, and changes to, the magnetic field in space
- Research and development of neutron research methods and tools for Hungarian and international use at the Budapest Neutron Centre (BNC) Utilization of renewable energy sources, hydrogen and high-energy waste, environmental protection in analytical chemistry and physical chemistry
- Interdisciplinary research on complex functional materials and nanometer-sized structures, exploration and application of physical, chemical and biological principles in integrated micro- and nanosystems, and development of test methods
- Publication and utilization of the acquired knowledge in undergraduate and graduate training, in international and domestic industrial R&D programs, with special regard to the needs of SMEs

Human resources

In the **Centre for Energy Research** the average number of employees was 321 in 2019, of which the number of researchers was 150. 33% of the researchers were women. 1 researcher was Full or Corresponding Member of the Hungarian Academy of Sciences, 17 scientists held the title of Doctor of the Hungarian Academy of Sciences, and 97 co-workers had a PhD or were candidates. The rate of young researchers (under 35) was 38%.

Institutional membership in international organisations

- European Energy Research Alliance
- Association for European NanoElectronics Activities
- Sustainable Nuclear Energy Technology Platform
- OECD Nuclear Energy Agency
- European Radiation Dosimetry Group
- European Technical Support Organisation Network
- European Atomic Energy Society

Main achievements in 2019

- Photocatalytic, photolytic and radiolytic elimination of imidacloprid from aqueous solution: Reaction mechanism, efficiency and economic considerations (Rózsa, G. etal,. Applied Catalysis B: Environmental, Vol. 250, 5 August 2019, pp. 429-439, https://www.sciencedirect.com/science/article/abs/pii/S092633731930075X)

- Non-destructive testing of radiation damage in reactor steel by magnetic method („NOMAD" EU Horizon 2020 Project)

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