

QUEST

**Quantum Reservoir Computing
Powered by Silicon Carbide Defect Qubits**



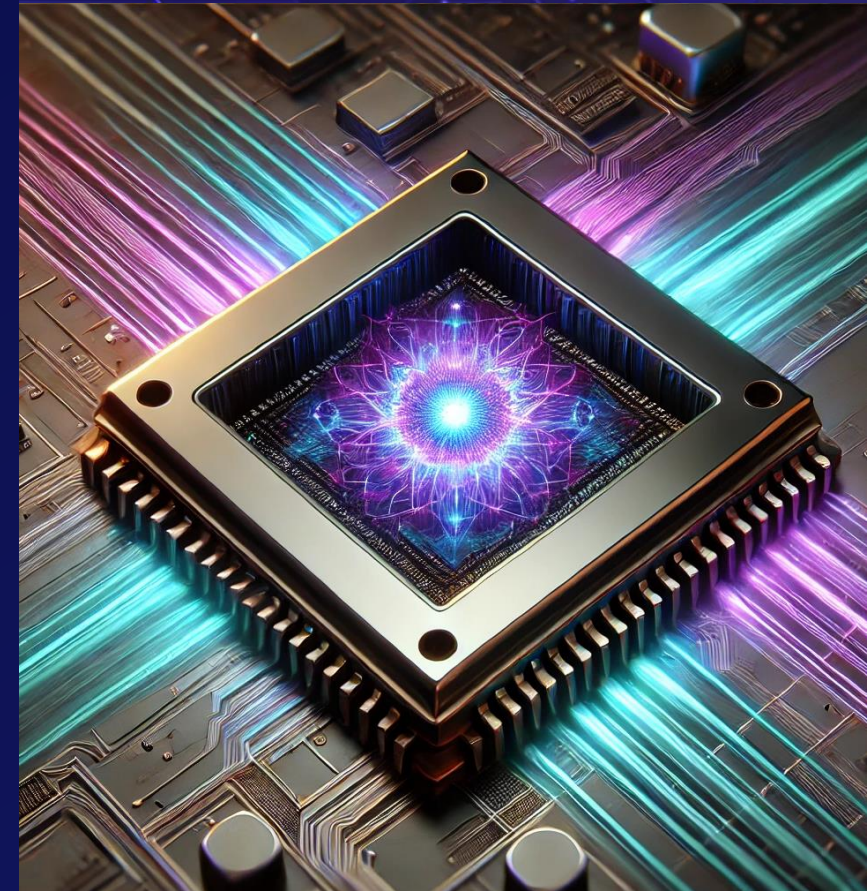
**Funded by
the European Union**



QUEST is a Horizon Europe Twinning project aimed at amplifying the scientific excellence and innovative capabilities of Eötvös Loránd University through collaboration with esteemed Twinning partners.

The project focuses on developing a quantum reservoir computing system leveraging silicon carbide defect qubits. This pioneering technology holds the potential to revolutionize computing by increasing computational speed and reducing energy consumption compared to traditional machine learning methods.

ABOUT PROJECT





ELTE
EÖTVÖS LORÁND
UNIVERSITY

The largest and oldest science university in Hungary. ELTE was in the category level 501–600 in the 2023 Academic Ranking of World Universities (ARWU) and it is regarded as the best higher education institution in Hungary. ELTE's nine faculties cover a wide spectrum of science and education with over 28,000 students attending ELTE's eight campuses across Budapest.

**Dr. Viktor Ivády
Assistant Professor at ELTE's
Institute of Physics
and Astronomy since 2022.**



One of the larger academic institutions in Sweden. LIU is innovative, highly ranked and known for close collaboration with business and society. With 27,000 students, 1,300 research students and 4,000 employees, LIU stands at position 28 among the world's 50 best young universities in the latest ranking by the prestigious QS World University Rankings.

**Prof. Igor A. Abrikosov
Head of Theoretical Physics Division**



Aalto University

Established in Finland 2010 through the merger of three prestigious institutions, stands at the forefront of innovation and academic prowess. Aalto is celebrated for fostering an entrepreneurial spirit and collaboration with industry, resulting in groundbreaking research and creative solutions. Its commitment to sustainability, digitalization, and design thinking makes it a hub for future-oriented education and research, preparing graduates to address complex modern challenges.



**Loughborough
University**

A research-oriented university, ranked in the top 10 in each of the most recent national league tables. The major focus of research in the Physics Department is theoretical and experimental condensed matter physics and nanoscience, centered around quantum engineering and technologies. The Department and university infrastructure provides access to facilities required to undertake this work.

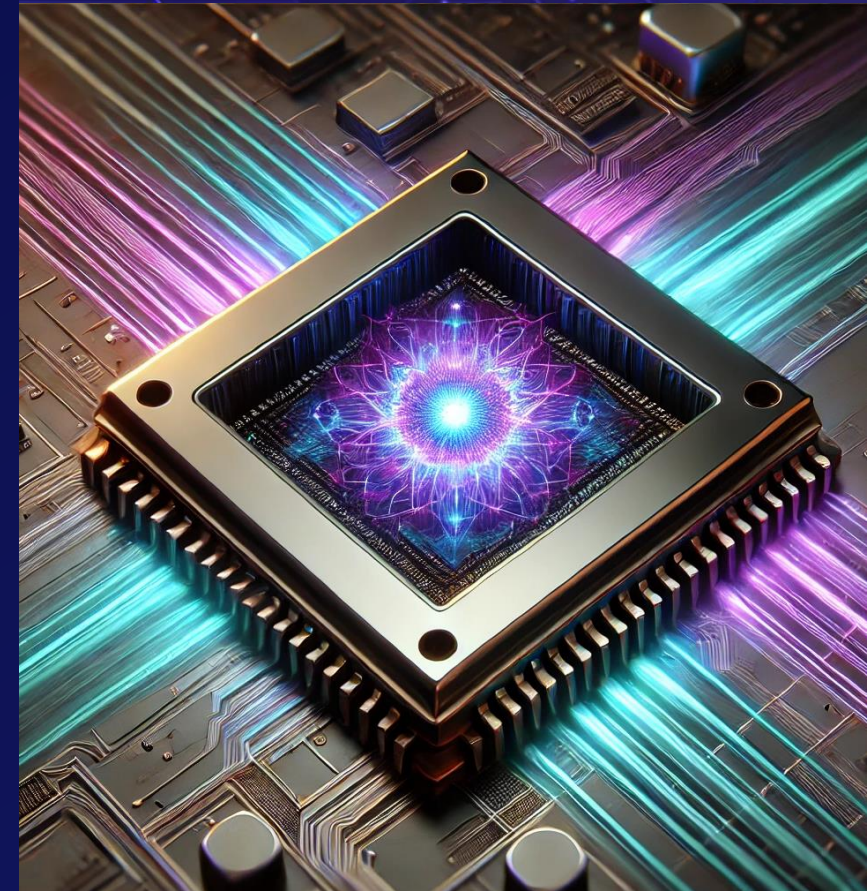
**Dr. Alexandre Zagoskin
Reader in Quantum Physics**



Intelligentsia Consultants Sarl (INT) is highly experienced in providing training in project management, proposal writing, scientific dissemination and communication, and intellectual property (IP) to researchers and research managers. Notably, the company has helped to implement four Twinning projects. Intelligentsia is a member of the Association of European Science and Technology Transfer Professionals (ASTP) with the company's employees also members of the European Association of Research Managers and Administrators (EARMA) and Institute of Physics (IOP).

OUR RESEARCH

- Preparation of silicon carbide defects
- Fabrication of point defect qubits
- Spin-dynamics simulations
- Non-linear dynamics of complex point defect-spin reservoir systems
- Dynamics of sets of defect qubits
- Optically detected magnetic resonance measurements
- Analyzing qubit output data



CONTACT US

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