

Outstanding success for Ulm's quantum physics QuantERA funds four teams

Research into quantum technology by four teams at Ulm University is being funded as part of the European QuantERA programme. This is more than at any other German university. The projects focus, for example, on more robust quantum computers and innovative medical diagnostic methods.

In the latest round of funding calls from QuantERA, only 39 out of around 290 applications submitted by international research teams were selected for funding – a success rate of just over 13 per cent. Ulm University is represented by four teams across three projects, making it the university with the most teams not only in Germany but across Europe. Two of the three projects are also being coordinated from Ulm. This underlines the Ulm University's position as one of the leading centres for quantum research in Germany and Europe.

"Achieving such a result in such a competitive process is truly exceptional. It demonstrates not only the scientific quality of our work, but also the strong international networks of our teams," emphasises Professor Joachim Ankerhold, Vice President Research at the Ulm University. All three projects are rooted in fundamental research but aim, in the long term, at potential technological applications – ranging from more robust quantum computers to novel medical diagnostic procedures. Each project brings together the expertise of four to five European research institutions. It is also noteworthy that two Ulm professors and their teams are involved in one of the projects as principal investigators.

An overview of the three funded projects

CoMaQLev (Magnetically Co-Levitated Superconductors in the Quantum Regime)

Under the leadership of Professor Benjamin Stickler (together with Professor Martin Plenio, both from Ulm University) and partners from Vienna, Gothenburg and Stockholm, this project investigates how the quantum mechanical motion of tiny, jointly 'levitated' superconducting particles (materials that conduct electricity with zero resistance) can be utilised to study massive systems at the interface between gravity and quantum physics.

HEMS (Heat and Entropy Management in Superconducting Devices)

Coordinated by Professor Elisabetta Paladino (University of Catania, Italy) with the participation of Professor Joachim Ankerhold (Ulm University) and partners from Finland, Poland and Berlin, this project addresses a key technical problem: the operation of superconducting circuits, such as those used in quantum computers, generates heat that can disrupt the sensitive quantum states. The researchers are seeking ways to better understand and control this heat generation.

MultiQS (Super-resolved Multi-parameter Quantum Sensing with Arrays of Diamond Nanoneedles)

Professor Fedor Jelezko (Ulm University) is coordinating this project together with partners from Finland, Lithuania and the Czech Republic. The aim is to develop biosensors made from nanostructured diamond – that is, diamond material that is specifically shaped on a nanoscale (millionths of a millimetre). With the aid of quantum mechanical measurement techniques, the aim is to visualise properties within cells.

About QuantERA

QuantERA is a consortium of over 40 research funding organisations from more than 30 countries, established to reinforce the quantum ecosystem through coordinated funding and strategic direction.

Further information

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