



Press Release

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## **Walther-Meißner-Institute coordinates European project “QMICS” on quantum communications and sensing**

**The proposal “Quantum Microwaves for Communication and Sensing (QMICS)” is being funded in the first phase of a ten-year research and development program of the European Union (Flagship on Quantum Technologies). QMiCS was selected among 90 competing consortia. As coordinator, the Walther-Meißner-Institute of the Bavarian Academy of Sciences and Humanities acts a central link between the European Commission and the international project partners.**

QMICS aims at creating a technological basis for improving communication and sensing methods by employing quantum effects. More specifically, one uses dedicated micro- and nanostructured circuits made from superconducting materials and cooled down close to absolute zero temperature to generate microwave radiation exhibiting a particular quantum mechanical property called “entanglement”. Exploiting entangled microwaves, a prototype quantum local area network cable for distributed quantum computing and a proof of concept for quantum-enhanced radar shall be demonstrated at the Walther-Meißner-Institute (WMI) within the next three years.

In order to achieve these ambitious goals, WMI collaborates with renowned research groups from France, Spain, Finland, and Portugal as well as with industry partners. The latter are the cryotechnology expert Oxford Instruments Nanotechnology Tools Ltd. from the UK and the Spanish microwave technology specialist TTI Norte S.L.

Historically, quantum mechanics was developed to describe certain peculiar properties of light and in the composition of atoms. Although rarely becoming evident in our everyday lives, quantum mechanics is expected to spawn promising technological applications such as quantum computing, bug-proof communication, and enhanced sensing methods already within the next years. The Quantum Flagship was launched in 2018 as one of the largest and most ambitious research initiatives of the European Union. With a budget of €1 billion and a duration of 10 years, the flagship brings together research institutions, academia, industry, enterprises, and policy makers, in a joint and collaborative initiative on an unprecedented scale. The main objective of the Flagship is to consolidate and expand European scientific leadership and excellence in this research area as well as to transfer quantum physics research from the lab to the market by means of commercial applications and disruptive technologies. With over 5000 researchers from academia and industry involved in this initiative throughout its lifetime, it aims to create the next generation of disruptive technologies that will impact Europe’s society, placing the region as a worldwide knowledge-based industry and technological leader in this field.

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**Press photo:** WMI/Stefan Pogorzalek

Caption: Enjoying the success: The Principal Investigators for QMiCS, Prof. Dr. Rudolf Gross (Director of WMI), Dr. Frank Deppe (Project Coordinator), Dr. Kirill Fedorov and Dr. Achim Marx (from right to left)

**Further information:** <https://qt.eu>

The Bavarian Academy of Sciences and Humanities, founded in 1759, is the largest and one of the oldest academies in Germany. For more than 250 years it has been committed to its tasks as a scholarly society, non-university research institution and place of lively scientific dialogue with society and politics. The focus of its work is on long-term projects that provide the basis for further research and safeguard the cultural heritage. The Academy is also responsible for the Leibniz Computing Centre, one of the largest supercomputing centres in Europe, the Bavarian Research Institute for Digital Transformation and the Walther-Meißner-Institute for Low Temperature Research. It supports excellent young scientists in Bavaria in its Young Research School. The Academy is a member of the Akademienunion.