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# Experimental Quantum Materials Research Group (RNDr. Michal Vališka, PhD)

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The group's research contributes to a deeper understanding of **modern quantum materials** and lays the groundwork for the future development of new functional and quantum technologies.

The team focuses on the **preparation and study of high-quality single crystals and other materials whose properties are governed by strong electronic correlations**. The group investigates quantum criticality, low-dimensional and frustrated magnetism, and unconventional superconductivity, while exploring the links between crystal structure, electronic states, and the magnetic, transport, and thermodynamic behaviour of materials.

The team combines crystal growth, structural characterization, and precise physical measurements under extreme conditions of low temperature, high magnetic field, and pressure.

**Through close collaboration with leading international laboratories and large-scale research infrastructures, the group has access to state-of-the-art experimental methods** that make it possible to reveal subtle details of quantum states of matter inaccessible by conventional approaches.

Michal Vališka is an experimental physicist at the Faculty of Mathematics and Physics, Charles University. After completing his PhD studies at the faculty, he worked at the **Institut Laue-Langevin** and subsequently at **CEA Grenoble**, where he focused on strongly correlated electron systems and unconventional superconductivity. After returning to Prague, he established his own research group and now leads the **GAČR Junior Star project STIUS: Symmetry and Topology in Ultraclean Superconductors**. For his research, he received the **Neuron Award for Promising Scientists in Physics**.

Photo: Vladimír Šigut, CU