

Opportunity for a PhD student and for Master students in **Entanglement, quantum communication, and tests of quantum physics**

Quantum entanglement and quantum superposition lie at the heart of quantum physics. Entanglement allows to interlink distant quantum systems, e.g., to entangle the motion of optomechanical systems with the spin states of atoms. At the same time, entanglement can be used as a fundamental resource for quantum communication protocols like quantum state teleportation or for quantum-enhanced sensors.

You will perform research on novel sources of entanglement that will later allow coupling to optomechanical and atomic systems and entanglement swapping towards future quantum repeaters. You will also contribute to Slovene efforts to build a European Quantum Communication Infrastructure in close collaboration with other leading research groups in Europe.

For this project, R. Kaltenbaek will employ one PhD student, and at least one Master student with an expected starting date of **October 1st, 2022**.

The topics for the research to be performed are:

- implement state-of-the-art sources of entanglement
- long-distance entanglement distribution and entanglement swapping

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