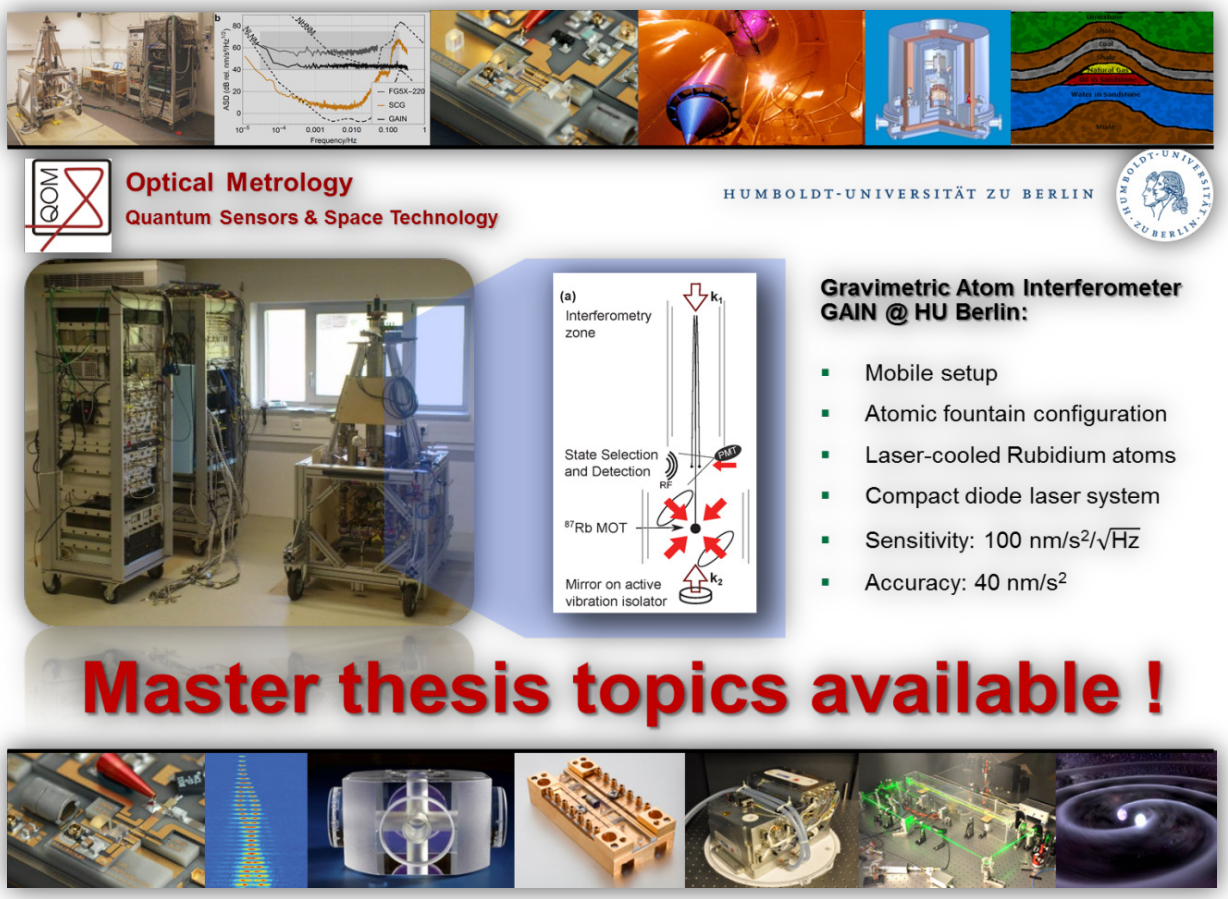

Quantum sensors based on light pulse interferometry with cold atoms offer a superior alternative to established, classical instruments for absolute and ultra-stable measurements of i) accelerations, ii) differential accelerations and iii) rotations. Field applications of these sensors exist in geodesy, surveying and mapping, hydrology, natural resource exploration and civil engineering.

Accommodated on mobile platforms like ground vehicles, aircraft, helicopters and ships, these devices can also contribute to climate research, earth-quake security, GPS-independent inertial navigation as well as city planning. Quantum sensors are furthermore applied to investigate questions in fundamental physics, including tests of general relativity (equivalence principle), and for the determination of physical constant such as the gravitational constant or fine structure constant.

We offer interesting master projects on the following topics:

1. Optimization of an atomic gravimeter setup and participation in a mobile measurement campaign at the geodetic observatory in Wettzell, Germany.
2. Setup of a compact laser system for laser cooling and atom interferometry with Rubidium
3. Investigation of non-linear extensions in the Schrödinger equation with atom interferometry

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