Quantum sensors in spacetime

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Matter wave interferometry became an interesting tool for experimental gravitational physics for the last 25 years. On one side, quantum objects might be fundamental for an axiomatic approach to space-time geometry, on the other side matter wave interferometry can enable highly precise experiments to test General Relativity and the limits of possible modified theories.

In particular, the application of quantum sensors on space platforms and satellites under conditions of weightlessness brought up a number of new types of gravitational experiments with increasing accuracy.

The presentation will report on new approaches and goals of future experiments in space.