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Quantum sensing – the key technology for further gravitational experiments in space

Thursday, 15 June 2023 10:00 (30 minutes)

Progress in physics always has been stimulated by unexplained observations or experiments. Expressions like "dark matter" or "dark energy" might help to apply the present standard physical theories, but cannot explain their origin sufficiently. The situation of fundamental physics today still causes a lot of open questions, e.g. the theoretical inconsistency of quantum mechanics and General Relativity. Furthermore, there are observations which at least until now and after many years of studies, have not yet found any convincing explanation.
Therefore, we need better, i.e. more and more accurate measurement technology in order to detect even the most tiny effects acting on spacecraft which are our probes in deep space. It seems that those emerging technology must be based mainly on quantum optics able to explore the structure of spacetime in an new and unique way.
The presentation will report on the possibilities for future missions and space experiments in gravitational and quantum physics.

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