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QUANTUM GRAVIMETER APPLICATIONS IN SPACE

Abstract

The use of quantum sensors, more specifically Quantum-based Gravimeters, will lead to more accurate measurements of gravitational fields in comparison to classical sensors. This has uses in telescopes and satellites, and space probes, with the potential to increase accuracy and precision in a variety of measurements across the space industry. The increase in accuracy through the use of these sensors has been found to be up to 100,000,000 times more sensitive than classical sensors. Quantum sensors in space will be able to determine the density and seismic status and change of the global environment, climate, and bodies in space that may be of significance to space missions through the use of Quantum Interferometry. Global needs for quantum sensors consist of climate change, seismic scanning for earthquakes, and density analysis for future explorations to other planets or celestial bodies. Ways to implement such technology requires optimization of fundamental parameters.