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Quantum sensors for gravimetry and gravity gradiometry

Christian Schubert, Waldemar Herr, Sven Abend, Naceur Gaaloul, Dennis Schlippert, Wolfgang Ertmer, and Ernst M. Rasel

Gottfried Wilhelm Leibniz Universität Hannover, Institut für Quantenoptik, Hannover, Germany

Quantum sensors utilising atom interferometry enable absolute measurements of gravity (1) and gravity gradients (2). This contribution will introduce the operation principle of atom interferometers, discuss their current state of the art and limitations, and outline the key techniques for improvements. It will report on our developments for transportable (3) and stationary high-performance devices (4) and give a perspective for space-borne quantum sensors in the frame of geodetic missions (5).

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