Quantum sensors for gravimetry and gravity gradiometry

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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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