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Atom interferometry for fundamental physics tests

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Today, matter-wave interferometers such as clocks and gravimeters allow precision measurements of time and gravity at unprecedented levels. In all these sensors, the exquisite control of both internal (electronic) and external (center of mass motion) degrees of freedom of ultra-cold atomic samples, enable us to study interactions at their most basic, quantum level, paving the way for new tests of fundamental physics.

In this talk, I'll review the most recent results in the field and discuss the prospects of novel atom interferometry schemes based on ultra-narrow, intercombination transitions of alkali-earth-like atoms.

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