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Bragg interferometry with strontium atoms for gravity measurements

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We report on the first atom interferometer based on large-momentum-transfer Bragg diffraction with strontium atoms in a fountain. We measured gravity acceleration of ^{88}Sr isotope with a sensitivity $\delta g/g = 4\times10^{-8}$ at 2000 s integration time [1]. This isotope has powerful coherence properties such as zero total spin in the ground state, narrow optical transitions, and low scattering cross section. Thanks to these properties and applications of new interferometric schemes, unprecedented sensitivities are foreseen.

[1] T. Mazzoni, X. Zhang, R. Del Aguila, L. Salvi, N. Poli, and G. M. Tino, "Large-momentum-transfer Bragg interferometer with strontium atoms", Phys. Rev. A 92, 053619 (2015).

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