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【342】LEMING: A gravity experiment with muonium atoms

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The LEMING experiment aims to measure the free fall of muonium ($M = \mu^+ + e^-$) and would thereby test for the first time the weak equivalence principle using a purely leptonic, second-generation antimatter dominated system. Such a direct measurement is performed with atom interferometry, which requires a high-intensity, low-emittance M beam. This novel M source is being developed based on stopping accelerator muons in a layer of superfluid helium. In this contribution the LEMING experiment is introduced. The experimental setup for the first observation of M emitted from superfluid helium and an initial characterization of the novel M source are presented.

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