Poster Session #A
Laboratory tests of gravitation

A16

Ferromagnetic Gyroscopes for Tests of Fundamental Physics

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Is intrinsic spin affected by gravity the same way as orbital angular momentum? We propose how to measure general-relativistic precession of intrinsic spin, to test this question. In our concept a compass (a ferromagnet) is made to precess around, instead of pointing along, the direction of a magnetic field, due to its electrons' intrinsic spins. We seek to perform a proof-of-principle measurement in a ferromagnet levitating above a superconductor. We show that a bound on properties of dark matter candidate in such a setup is competitive with the current state of the art.
https://arxiv.org/abs/2006.09334
https://arxiv.org/abs/2010.08731