Abstract Submitted
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Theoretical Suggestion of Realistic Experiment on the Earth's Orbit to Test Quantum Effects in General Relativity[1] ANDREI LEBED, Department of Physics, University of Arizona — We show theoretically that quantum fluctuations result in the existence of seldom events, where the equivalence between energy and passive gravitational mass is broken for the simplest composite quantum body – a hydrogen atom [1]. We suggest to conduct experiment on the Earth's orbit, where such seldom events can be observed by measuring electromagnetic radiation, emitted from a tank of pressurized hydrogen molecules or helium atoms placed in a small spacecraft or satellite. It could be the first experiment where quantum effects would be directly observed in general relativity.

[1] A.G. Lebed, Cent. Eur. J. Phys., v. 11, p. 969 (2013).

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