

# **Prelude to a Paradigm Shift: Thought Experiment Challenges the Weak Equivalence Principle**

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**Abstract:** The equivalence principle is fundamental to general relativity (GR), our accepted theory to explain gravity. Numerous physical experiments tried to, and many more are continuing trying to find an anomaly to this principle. The lack of any deviatory evidence underpins GR, and conversely should an anomaly be discovered that then would open a window to new physical insights. Thought experiments are legitimate ways to test physical theories. We conduct a thought experiment that collides two, in gravitational free fall, uncharged particles. The result of this thought experiment leads to the conclusion that the equivalence principle is not true.