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Weighing the vacuum with the Archimedes experiment

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Archimedes is an experiment designed to measure the discussed interaction between vacuum fluctuations and the gravitational field. It is based on the measurement of the weight variation of a suitable stack of Casimir cavities whose vacuum energy is varied thanks to a suitable superconducting phase transition. The experiment is currently being installed and commissioned at the Sos Enattos site in Sardinia, chosen for its properties of extreme seismic and anthropic quiet. The theoretical aspects are briefly recalled, the state of the art of the experiment is discussed, and some experimental implications in the geophysical and astrophysical fields are also presented.

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