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Updated status of the GRANIT facility

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The GRANIT facility is designed to study quantum states of Ultra Cold Neutrons (UCNs) bouncing over a mirror in the gravitational field.

The UCNs are produced by a dedicated superthermal helium source installed at the ILL reactor.

The source is now connected to the GRANIT spectrometer, and improvements have been implemented to make the source more reliable and extract the UCNs more efficiently. New measurements have been made and confirm the validity of our choices.

Several developments are also made to produce efficient detectors for GRANIT.

The next step will consist in inducing resonant transitions between quantum states in a flow through mode using an oscillating magnetic field gradient.

Searching for deviations of the expected resonant frequencies we can test the weak equivalence principle in a quantum context and/or probe the existence of a new fundamental force.

Primary author: ROULIER, Damien (Institut Laue Langevin)

Co-author: NESVIZHEVSKY, Valery (ILL)

Presenter: ROULIER, Damien (Institut Laue Langevin)

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