

Experiments with ultra-cold neutrons at the Institut Laue-Langevin

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Experiments with ultra-cold neutrons provide a powerful probe of models of the early universe at the precision frontier. Flagship experiments with ultra-cold neutrons measure the lifetime of the free neutron, search for its electric dipole moment, and study gravity by means of resonance spectroscopy methods.

For this purpose, the Institut Laue-Langevin (ILL) in Grenoble, France, an international research centre at the leading edge of neutron science and technology, operates two ultra-cold neutron installations.

After a brief introduction of the ILL with a special focus on major activities in nuclear and particle physics, the ultra-cold neutron installations will be presented in more detail. The scope of fundamental physics studies with ultra-cold neutrons is outlined, and the ongoing research program using ultra-cold neutrons is highlighted.

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Track Classification: Precision experiments with cold neutrons