

# Lorentz invariance on trial in the weak decay of rubidium atoms

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The invariance of the laws of physics under Lorentz transformations is one of the most fundamental principles underlying our current understanding of nature. In theories trying to unify the Standard Model with quantum gravity, this invariance may be broken, and dedicated high-precision experiments at low energy could be used to reveal such suppressed signals from the Planck scale.

In the framework of the TRImP (Trapped Radioactive Isotopes: micro-laboratories for fundamental Physics) program at KVI, we will test Lorentz invariance searching for a dependence of the decay rate of spin-polarized  $^{87}\text{Rb}$  nuclei on the daily, sidereal or deliberate re-orientation of the spin. Observation of such a dependence would imply a breakdown of Lorentz invariance.

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