

## Lorentz symmetry on trial on beta decay

*Monday, 18 June 2012 16:00 (20 minutes)*

One of the most fundamental principles on which our current understanding of nature is based is the invariance of physical laws under Lorentz transformations. Theories trying to unify the Standard Model with Quantum Gravity may break this invariance, 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 nuclei on the daily, yearly or deliberate re-orientation of the spin. Observation of such a dependence would hint at a breakdown of Lorentz invariance.

We will present results from the first experiments using  $^{80}\text{Rb}$  and  $^{20}\text{Na}$  atoms produced with the AGOR cyclotron at the KVI.

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