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Detecting Lorentz invariance violations with a quantum cavity

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We study a scalar field in a 1D quantum cavity governed by a non-Lorentz invariant action. We demonstrate that the energy levels depend on the velocity of the cavity's walls with respect to a preferred frame, which is a stark violation of the principle of relativity.

Author: SEAHRA, Sanjeev

Presenter: SEAHRA, Sanjeev

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