Impact of Low-Energy Constraints on Lorentz Violation

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abstract

We extend previous analyses of the violation of Lorentz invariance induced in a non-critical string model
of quantum space-time foam, discussing the propagation of low-energy particles through a distribution of
non-relativistic D-particles. We argue that nuclear and atomic physics experiments do not constitute sensitive
probes of this approach to quantum gravity due to a difference in the dispersion relations for massive probes
as compared to those for massless ones, predicted by the model.