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Constraining Lorentz Invariance Violation with Fermi-LAT Observations of GRBs

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It has been postulated that Violation of Lorentz Invariance (LIV) can manifest as a dependence of a photon's velocity in vacuum on its energy. Because of this dependence, two photons of different energy emitted simultaneously from a distant astrophysical source may not arrive at the same time at the Earth. The Fermi LAT and GBM collaborations have already placed tight constraints on LIV-induced dispersions using observations of Gamma-Ray Bursts (GRBs) 090510 and 080916C. In this work, using Fermi-LAT MeV/GeV observations of four selected bright GRBs and three different analysis techniques, we place stronger and more robust constraints. We will summarize the analysis and any underlying astrophysical assumptions, and present our preliminary results.

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