

## Limits on LIV from ultra high energy astrophysics

### Abstract

In this work, the photon horizon including LIV is studied by correcting the pair-production interaction of gamma-ray with the Cosmic Background Light. The derived scenarios are used to predict important changes in the propagation of photons with energy greater than  $10^{18}$  eV. We have computed the GZK photon flux on Earth for several ultra high energy cosmic ray source (UHECR) models and we compare them with the new upper limits of the photon flux obtained by the Pierre Auger Observatory to impose higher limits to the generic LIV coefficients of order  $n = 0, 1$  and  $2$  in the astrophysical scenario which better describes the UHECR data.

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