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## Probing Lorentz Invariance Violation at the Pierre Auger Observatory

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Lorentz Invariance Violation (LIV) has been investigated by several theories and tested by numerous experiments. Ultra-high energy cosmic rays (UHECR) are the most energetic particles known in the Universe and, since LIV is supposed to be suppressed in lower energies, they have been proposed as a suitable test for LIV. The Pierre Auger Observatory is the largest observatory designed to detect such particles. It is located in Argentina and consists of 1660 water tanks and 27 fluorescence telescopes. In this work, we study the capability of testing LIV in the hadron sector by using the UHECR spectrum and composition measured by the Pierre Auger Observatory. To obtain that, the propagation of UHE protons and nuclei has been changed by introducing LIV in the kinematics of the pion production and the photodisintegration. This results in changes in the energy losses of UHECR and, consequently, in possible changes in the spectrum. Finally, a fit of both spectrum and composition measured by Auger have been performed considering the LIV propagation.

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