LNGS SEMINAR SERIES

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Are cosmic rays still a valuable probe of Lorentz invariance violations in the Auger era?

Abstract

Relativistic Invariance might be modified by Quantum Gravity effects. The interesting point which emerged in the last fifteen years is that remnants of possible Lorentz Invariance Violations could be present at energies much lower than their natural scale, and possibly affect Ultra High Energy Cosmic Rays phenomena. We discuss their status in the view of recent data from the Pierre Auger Observatory.