

Measurements of the proton-air cross section with high energy cosmic ray experiments.

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Detecting Ultra High Energies Cosmic Rays (UHECRs) enables us to measure the proton-air inelastic cross section σ_{p-air}^{inel} at energies that we are unable to access with particle accelerators. The proton-proton cross section σ_{p-p} is subsequently inferred from the proton-air cross section at these energies. UHECRs experiments have been reporting on the proton-air inelastic cross section starting with the Fly's Eye in 1984 at $\sqrt{s} = 30\text{-TeV}$ and ending with the most recent result of the Telescope Array experiment at $\sqrt{s} = 95\text{-TeV}$ in 2015. In this talk, I will present the methods and experimental results from some of these experiment.

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