Contribution ID: **84** Type: **oral**

Measurements of the cosmic ray proton and helium spectra with the DAMPE experiment

Tuesday, 26 October 2021 15:00 (20 minutes)

The DArk Matter Particle Explorer (DAMPE) is a space-based mission designed as a high energy particle detector for measuring cosmic-rays and gamma-rays in space. It was successfully launched on December 17, 2015, and since then has been in stable data taking for more than five and a half years. The large geometric factor and thick calorimeter enables DAMPE to have very good potential to identify different cosmic-ray components and measure their spectra individually up to about 100TeV. In this contribution, we focus on the measurements of cosmic-ray proton and helium spectra obtained by analysing the on-orbit data collected by DAMPE. The measurements of DAMPE cover a wider range of energies than any other single experiment, and reveal new spectral features above 10 TeV for both of proton and helium. These results provide new implications in understanding the acceleration and propagation processes of Galactic cosmic rays.

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Cosmic rays

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Session Classification: Session 3