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DArk Matter Particle Explorer: 9 years in Space

Thursday 11 September 2025 09:10 (40 minutes)

The Dark Matter Particle Explorer (DAMPE) is a pioneering calorimetric space experiment that has been successfully operating since December 2015. Its primary scientific objectives include measuring the spectra of both primary and secondary cosmic-ray species, searching for potential indirect signatures of dark matter in cosmic rays, and gamma-ray physics. For electrons and gamma rays, DAMPE covers an energy range from a few GeV up to around 10 TeV, achieving an exceptional energy resolution of nearly 1%. For hadronic cosmic rays, its measurements reach several hundred TeV in kinetic energy.

In this talk, we will begin with an overview of the DAMPE mission and its current operational status in orbit. We will then highlight key scientific achievements, including recent measurements of the BCNO group, iron nuclei, the extended light element spectra beyond 100 TeV, and other significant results.

References

https://doi.org/10.1103/PhysRevLett.134.191001; https://doi.org/10.1103/PhysRevD.109.L121101; https://doi.org/10.1103/PhysRevD.111.01
https://doi.org/10.1038/nature24475

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