

Convolutional Neural Network Approach for the Measurement of Non-Fiducial Electrons Cosmic-Rays Using the DAMPE Experiment.

The Dark Matter Particle Explorer (DAMPE) is a space-based cosmic-ray observatory with the aim, among others, to study cosmic-ray electrons (CREs) up to 10 TeV. Due to the low CRE rate at multi-TeV, we increase the acceptance by selecting events outside of the fiducial volume. Non-fiducial events, with their complex topology, do however require special treatments with sophisticated analysis tools. We propose therefore a Convolutional Neural Network to identify non-fiducial CREs and reject background, based on their interaction in DAMPE's calorimeter. We will show how this method can recover those events.

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