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Forbush Decrease of cosmic ray electrons and positrons with DAMPE

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The Forbush Decrease (FD) represents the rapid decrease of the intensities of charged particles accompanied with the coronal mass ejections (CMEs) or high-speed streams from coronal holes. We study the FD event occurred in September, 2017, with the electron and positron data recorded by the Dark Matter Particle Explorer. The evolution of the FDs from 2 GeV to 20 GeV with a time resolution of 6 hours are given. We observe two solar energetic particle events in the time profile of the intensity of cosmic rays, the earlier and weak one has not been shown in the neutron monitor data. Furthermore, both the amplitude and recovery time of fluxes of electrons and positrons show clear energy-dependence, which is important in probing the disturbances of the interplanetary environment by the coronal mass ejections.

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Cosmic rays

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