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Introduction to the scientific application system of DAMPE

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The Dark Matter Particle Explorer (DAMPE) is a high energy particle physics experiment satellite, launched on 17 Dec 2015. The science data processing and payload operation maintenance for DAMPE will be provided by the DAMPE Scientific Application System (SAS) at the Purple Mountain Observatory (PMO) of Chinese Academy of Sciences. SAS is consisted of three subsystems - scientific operation subsystem, science data and user management subsystem and science data processing subsystem.
In cooperation with the Ground Support System (Beijing), the scientific operation subsystem is responsible for proposing observation plans, monitoring the health of satellite, generating payload control commands and participating in all activities related to payload operation. Several databases developed by the science data and user management subsystem of DAMPE methodically manage all collected and reconstructed science data, down linked housekeeping data, payload configuration and calibration data. Under the leadership of DAMPE Scientific Committee, this subsystem is also responsible for publication of high level science data and supporting all science activities of the DAMPE collaboration. The science data processing subsystem of DAMPE has already developed a series of physics analysis software to reconstruct basic information about detected cosmic ray particle. This subsystem also maintains the high performance computing system of SAS to processing all down linked science data and automatically monitors the qualities of all produced data. In this talk, we will describe all functionalities of whole DAMPE SAS system and show you main performances of data processing ability.

Primary author: Dr 藏, 京京 (PMO)

Co-author: Dr 李, 翔 (PMO)

Presenters: Dr 藏, 京京 (PMO); Dr 李, 翔 (PMO)

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