

SPRINT-B/ERG 衛星に搭載する中間エネルギー電子分析器のエネルギー・角度応答

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Energy/angle responses of the medium-energy electron analyser for SPRINT-B/ERG

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We have been developing an instrument for the observations of the medium-energy electrons (10-80 keV) in our coming radiation belt mission SPRINT-B/ERG (Energization and Radiation in Geospace). The mission goal is to understand the radiation belt dynamics during space storms. The medium-energy electron measurement is one of the most important issues in this mission since these electrons generate whistler chorus wave, which is believed to play significant roles in the relativistic electron acceleration and loss during storms. On the other hand, the medium-energy electron measurement has been a challenging issue due to the harsh radiation environment, where penetrating particles and secondary particles result in significant background. Our strategy for enhancing signal-to-noise ratio is to combine an electrostatic analyser and silicon detectors, which provide energy coincidence for true signals. We tested the validity of such a combination through laboratory tests. The energy and angle responses were in conformity with expectations through simulations.