

ERG 衛星搭載超高エネルギー電子観測装置 (XEP-e)

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The extremely high-energy particle sensor for electron (XEP-e)

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It is well known that satellites are always in danger in space and especially high-energy radiation damages them. One of the sources that cause them is the radiation belt (the Van Allen belt). It was thought to be static, but in the 1990s it rediscovered the radiation belt fluctuates greatly. There are some reasons to occur this phenomenon, but we have not understood a clear reason of this yet. On the other hand, it is well known that the energetic particle flux vary during geomagnetic disturbances and the relativistic electrons in the other radiation belt change with solar wind speed.

The Exploration of energization and Radiation in Geospace (ERG) will try to reveal this mechanism. The ERG satellite is the small space science platform for rapid investigation and test satellite of JAXA/ISAS. This satellite will be lunched in 2016. Our group is developing the instrument (The eXtremely high-Energy Particle sensor for electron (XEP)) to detect a high-energy electron (400keV-20MeV). The XEP-e has 5 SSDs (Solid-State Silicon Detectors), one GSO single crystal scintillator and an anti-scintillator. It has one-way conic sight.

In this presentation we introduce the XEP-e and report the results of performace tests of the flight model.