

Design of a High Energy Electron Instrument (XEP) for the ERG Mission

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The ERG mission is now being planned to understand how high-energy particles are created in the terrestrial radiation belt, in which comprehensive measurements of from-thermal-to-high-energy plasmas will be made. In the mission, the XEP experiment measures high-energy electrons in a MeV to 10-MeV range, giving us information of a final state of energized electrons in acceleration processes. Space Environment Group in JAXA has started designing an XEP instrument for the ERG mission. As the starting point of the development, performance of the ELS-B sensor, being flown in space onboard the Jason-2 spacecraft, is investigated by a particle-material interaction simulation code, GEANT-4, to check whether it meets requirements for the XEP experiment. In the presentation, we will show results of the simulations and will discuss the instrument performance and further improvements.