Future Magnetospheric Mission 2: Dynamics of the Inner Magnetosphere

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The Earth's inner magnetosphere (inside 10 Re) is known to be the cavity where the energetic particles, so-called radiation belt particles, are generated and trapped. Knowledge of this region is very important as a measurable laboratory of high-energy particle acceleration in space as well as for human activities in space including space weather prediction. Despite abundant in-situ satellite measurements, this region has remained to be a missing region because of several difficulties arising from satellite measurements, such as high-energy particle contamination to low-energy particle measurement, protection of possible incidence of radiation belt particles, and measurement of 3-dimensional particle distribution functions over a broad energy range from a few eV to more than 100 keV. In this presentation, we would like to address the techniques that are expected to bring us new insight on the inner magnetospheric physics.