

Space Plasma Instrumentation on KAISTSAT-4

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A set of plasma instruments is being developed for KAISTSAT-4. The instrumentation consists of ElectroStatic Analyzer (ESA), Solid-State Telescope (SST), Langmuir Probe (LP), and Scientific Magnetometer (SM). ESA and SST are capable of fast sampling the velocity distribution functions over energy range of $10 \text{ V} < E/Q < \sim 30 \text{ keV}$ and $E/Q < 10 \text{ MeV}$, respectively. LP measures densities and temperatures of cold, ionospheric thermal plasmas, whereas SM determines magnetic field vectors at the locations of spacecraft. A particular attention has been given to the design of these instruments to enhance temporal resolution of the measurements. Indeed, the proposed resolution of 50 ms for the instruments is expected to adequately resolve the sub kilometric-scale structures associated with the formation of Earths Aurora over the Polar Regions. The design concept of the instruments will be presented in the paper followed by development progress of the instruments for Electronic Test Bed (ETB) testing of KAISTSAT-4.