

Future space physics missions at JAXA/ISAS

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Importance of the plasma effects are starting to be recognised in increasingly various planetary science and astrophysical situations. The space physics missions perform in-situ observations of space plasma dynamics and contribute to establishing our understanding of the Plasma Universe. Detailed in-situ detection of plasma particles and measurements of E and B fields are indeed necessary for the true understanding of the space plasma dynamics, because the plasmas are in the collisionless state, which is the state where our common sense is always betrayed. There are two ways of constructing a mission that truly influence our understanding of space plasmas. One is to explore a new parameter space via visiting a new place. The other is to explore a new physical regime by improving a suite of instruments. Each of the two future missions at JAXA/ISAS falls into each of these categories. The scientific objectives of the two missions, BepiColombo/MMO to Mercury, and SCOPE, which is characterised by formation flying macro-scale observations simultaneous with ultra high-time resolution instrument aimed at resolving microphysics, will be introduced in the context of the Plasma Universe.