

## SCIENCE OBJECTIVES OF THE PLASMA AND CHARGED PARTICLE MEASUREMENTS BY MERCURY MAGNETOSPHERIC ORBITER: MMO

# Yoshifumi Saito[1], Masafumi Hirahara[2], Takeshi Takashima[3], Kazushi Asamura[1], Hajime Hayakawa[1], Toshifumi Mukai[1]

[1] ISAS, [2] Dept. Phys., Rikkyo Univ., [3] Astronomy and Astro. Phys. Sci, Nagoya Univ.

It is known that Mercury has a magnetosphere with its own strong intrinsic magnetic field. In order to elucidate the detailed plasma structure and dynamics around Mercury, an orbiter MMO is planned to be launched in 2009 as a joint mission between esa and ISAS. Since the response time of Mercury's magnetosphere with respect to the solar wind variation is about 10 times faster than that of the Earth's magnetosphere, the time resolution of the instruments on the MMO should be high. We will propose comprehensive instruments for plasma and charged particle observation with sufficiently high time resolution, wide energy range, wide dynamic range, wide angular coverage, and high mass resolution.

According to the previous satellite observation (Mariner10 fly-by), Mercury has a magnetosphere with its own strong intrinsic magnetic field. In order to elucidate the detailed plasma structure and dynamics around Mercury, an orbiter MMO is planned to be launched in 2009 as a joint mission between esa and ISAS. Since the response time of Mercury's magnetosphere with respect to the solar wind variation is about 10 times faster than that of the Earth's magnetosphere, the time resolution of the instruments on the MMO should be high. Here we will propose comprehensive instruments for plasma and charged particle observation with sufficiently high time resolution, wide energy range, wide dynamic range, wide angular coverage, and high mass resolution. The plasma and charged particle instruments consist of 6 sensors and common electronics. The 6 sensors are 2 electron energy spectrum analyzers, an energy mass spectrum analyzer, a solar wind ion energy analyzer, a cold ion energy mass spectrometer and a high energy particle analyzer