

On relatively shifted centers of the analyzer electrodes of MIA onboard Mercury Magnetospheric Orbiter

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MIA (Mercury Ion Analyzer) on board MMO employs a top-hat electrostatic analyzer, which measures three dimensional velocity distribution of solar wind and magnetospheric ions around Mercury. The analyzer uses axisymmetric toroidal electrodes and is designed to have no dependence in its characteristics on azimuthal direction of incident ions. However, our ground calibration experiments have revealed that it has a slight dependence. We have tried to explain the dependence by means of model calculations. We assume that all parts of electrode are manufactured precisely but their centers are not exactly coincident through assembling process. Our result of model calculations suggests that relative shift of 0.1 to 0.2 mm may be included and can be responsible for the azimuthal characteristics of the analyzer.

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