

Reconstruction of space plasma structures from in-situ measurements

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Most space plasmas in the heliosphere are optically very thin and thus require in-situ measurements by spacecraft to reveal their fundamental properties. However, data interpretation often involves ambiguities about what kind of structures or phenomena are observed and how physical processes operate in regions traversed by the spacecraft. We present physics-based data analysis methods to reconstruct two- or three-dimensional space plasma structures from in-situ measurements. In particular, results from applications to state-of-the-art fast plasma measurements by the Magnetospheric Multiscale mission are discussed.

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