



Kinetic Scale Magnetic Structures in Geospace

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The high-resolution data currently available from the Magnetospheric Multiscale (MMS) mission provide an excellent opportunity to study the kinetic-scale physics in space plasma. In this study, kinetic scale sudden increase and decrease of magnetic strength are investigated. These phenomena are identified as kinetic scale magnetic hole, kinetic scale flux rope, electron scale magnetic bottle and electron scale mirror mode. They show various plasma properties, for example, coupling with electron vortex, electrostatic and electromagnetic waves, diamagnetic current, unique electron distributions and current systems. These kinetic scale structures could play important roles in electron dynamics, wave particle interaction, energy conversion and dissipation in geospace.