

## Effect of the IMF condition on the structure of ion scale magnetosphere

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The ion scale magnetosphere of magnetized objects and its interaction with the solar wind are investigated by a three-dimensional hybrid simulation, which treats the ions as kinetic super particles via particle-in-cell method and the electrons as a massless fluid. Here, the ion scale magnetosphere is that its dayside size is several to about one hundred times larger than the ion Larmor radius of the solar wind proton in the magnetic field strength at the magnetopause boundary. If a magnetosphere size is smaller than the ion scale, electron kinetic effects would not be negligible for the structure of the magnetosphere and it is difficult to treat the phenomena precisely by the hybrid simulation. If a magnetosphere size is larger than the ion scale, magnetohydrodynamics (MHD) simulations could well reproduce its structure. In the interaction between the ion scale magnetosphere and the solar wind, the interplanetary magnetic field (IMF) condition controls not only the reconnection regions but also the subsolar sheath flow due to the ion kinetic effects. Those influence the structures of the bow shock and the magnetopause boundary layer.