



Improved Hybrid Simulation on the Magnetic Interaction of Titan - mixed wings and CASSINI/MAG comparison

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Titan, the largest moon of Saturn, has a unique magnetic interaction with the plasma of the Saturnian system. The plasma is characterized by sub/transsonic velocity and at least two main species of ions, namely nitrogen and hydrogen. The gyroradii for these ions are 1.5 and 0.1 Titan radii in typical conditions. Hybrid simulations are thus preferable here when studying the effects of the ion motion.

We will present hybrid simulation results for Titan with an improved spatial resolution and will focus on the magnetic structures found around Titan as well as on a comparison with CASSINI/MAG data. The magnetic field behaves rather smoothly in our self-consistent simulation as we use about 50 macroions per simulation cell. This allows us to see such features as the mixed wings of Titan present also in some MHD models of Titan.

The Cassini mission is currently providing the measurements by which the validity of the models of the interaction can be established.