# Global Magnetospheric Simulations: coupling with ionospheric and solar wind models

Giovanni Lapenta (1), Vyacheslav Olshevskyi (1), Jorge Amaya (1), Jan Deca (1), Stefano Markidis (2), and Alexander Vapirev (1)

(1) Katholieke Universiteit Leuven, Afdeling Plasma-astrofysica, Departement Wiskunde, Heverlee, Belgium (giovanni.lapenta@wis.kuleuven.be, +32-(0)16-327998), (2) KTH

We present results on the global fully kinetic model of the magnetosphere of the Earth. The simulations are based on the iPic3D code [1] that treats kinetically all plasma species solving implicitly the equations of motion for electrons and ions, coupled with the Maxwell equations. We present results of our simulations and discuss the coupling at the inner boundary near the Earth with models of the ionosphere and at the outer boundary with models of the arriving solar wind.
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[1] Stefano Markidis, Giovanni Lapenta, Rizwan-uddin, Multi-scale simulations of plasma with iPIC3D, Mathematics and Computers in Simulation, Volume 80, Issue 7, March 2010, Pages 1509-1519, ISSN 0378-4754, 10.1016/j.matcom.2009.08.038

[2] Giovanni Lapenta, Particle simulations of space weather, Journal of Computational Physics, Volume 231, Issue 3, 1 February 2012, Pages 795-821, ISSN 0021-9991, 10.1016/j.jcp.2011.03.035.