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Space plasma-structure interaction: simulation with verification[1]

OLEG BATISHCHEV, Northeastern University — Space plasma interaction with artificial and natural objects in the presence of EM-fields is a strongly non-linear phenomenon with many kinetic effects taking place at once. Experimental data are limited to passive observations and scarce active experiments using satellites. New adaptive multi-scale model is being extended into 3D3V Eulerian formulation [1]. A parallel verification using laboratory experiments is being developed as well. We report current status of this combined program.

[1] O. Batishchev, Semi-Analytical Adaptive Vlasov – Fokker-Planck – Boltzmann Methods, pp.237-315, in book Eulerian Codes for the Numerical Solution of the Kinetic Equations of Plasmas (Ed. M. Shoucri), Nova Science, 2010.

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