Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Multi-scale simulation of plasma-object interaction[1] OLEG BATISHCHEV, Northeastern University/ Physics/ CIRCS, Boston MA 02115 — We present first simulation results from 3D3V hybrid kinetic method. The combination of discrete and continuous representation of distribution function allows controlling numerical noise and diffusion. Adaptive 3D grid automatically follows regions of high gradient and discontinuities such as shocks, radiation fronts, double-layers and sheaths. Our semi-analytical approach [1] to fractional sub-steps exceeds implicit schemes in accuracy and numerical stability. [1] O.Batishchev, Semi-Analytical Adaptive Vlasov – Fokker-Planck – Boltzmann Methods, pp.237-315, in book (Ed. M.Shoucri) Eulerian Codes for the Numerical Solution of the Kinetic Equations of Plasmas, Nova Science, 2010.

[1]Work was supported by US DoD/ AFOSR Grant FA9550-10-1-0498

Oleg Batishchev
Northeastern Univ

Date submitted: 15 Nov 2013 Electronic form version 1.4