

Abstract Submitted  
for the DPP13 Meeting of  
The American Physical Society

**1D2V Gyrokinetic Simulations of Parallel Transport in a Scrape-Off Layer Plasma using Discontinuous Galerkin Algorithms<sup>1</sup>** E.L. SHI, Princeton University, A. HAKIM, G.W. HAMMETT, Princeton Plasma Physics Laboratory — We have performed 1D2V gyrokinetic simulations of ELM pulse propagation along a scrape-off layer plasma and measured the resulting time profile of the heat deposition on the divertor plate. The ELM modeling problem is based on a case studied in recent literature, and results using kinetic ions and electrons will be presented. The model is implemented in Gkeyll, a prototype code exploring discontinuous Galerkin (DG) algorithms for modeling the edge plasma in fusion devices and basic plasma experiments like LAPD. To handle the effect of collisions, the model uses a Lenard-Bernstein collision operator, which conserves total number, momentum, and kinetic energy. The diffusive term in the collision operator is implemented using a recovery-based DG method. We will also present results from a test problem of ion-acoustic wave damping in a collisional plasma used to study resolution requirements and to benchmark with Braginskii's transport coefficients.

<sup>1</sup>This work was supported by the Max-Planck/Princeton Center for Plasma Physics and DOE Contract DE-AC02-09CH11466.

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Date submitted: 12 Jul 2013

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