

Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Flux ropes in 3D kinetic reconnection: psontaneous generation and evolution GIOVANNI LAPENTA, KU Leuven, STEFANO MARKIDIS, KTH, ANNA LISA RESTANTE, KU Leuven, TOM INTRATOR, LANL, RSX COLLABORATION, SWIFF EC-FP7 (SWIFF.EU) COLLABORATION — We present kinetic simulations with the full 3D electromagnetic code iPic3D on massively parallel computers. We report on state of the art simulations with the largest domains and resolutions afforded by the most advanced petascale computers (Curie in France, available via the PRACE European project and Pleiades in USA, available via the MMS misison). Our results cosndier a portion of the magnetosphere for realistic conditions and show the onset of reconnection forming multiple flux ropes. We follow then their evolution and characterise their behaviour, focusing on regions where the flux ropes kink and coalesce. The analysis tool incldue a novel implementation of the quasi singular layer analysis based on the squashing factor.

Giovanni Lapenta
KU Leuven

Date submitted: 12 Jul 2012

Electronic form version 1.4