

using continuum kinetic simulations” (presenter: Petr Cagas). Thank you

Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Nonlinear saturation of Weibel-type instabilities¹ BHUVANA SRINIVASAN, PETR CAGAS, Virginia Tech, AMMAR HAKIM, Princeton Plasma Physics Laboratory — Weibel-type instabilities, which grow in plasmas with anisotropic velocity distribution, have been studied for many years and drawn recent interest due to their broad applicability spanning from laboratory laser plasmas to origins of intergalactic magnetic fields in astrophysical plasmas. Magnetic particle trapping has been considered as the main mechanism of the nonlinear saturation of these instabilities. However, novel continuum kinetic and two-fluid five moment simulations show that there are additional effects – the transverse flow introduced by the magnetic field creates a secondary electrostatic two-stream instability which alters the saturation and is responsible for a quasi-periodic behavior in the nonlinear phase.

¹This research was supported by the Air Force Office of Scientific Research under grant number FA9550-15-1-0193

Petr Cagas
Virginia Tech

Date submitted: 13 Jul 2017

Electronic form version 1.4