

Abstract Submitted  
for the GEC13 Meeting of  
The American Physical Society

**Numerical studies of collisionless scattering of an electron beam propagating in background plasma**<sup>1</sup> ERINC TOKLUOGLU, ALEXANDER KHRABROV, IGOR KAGANOVICH, PPPL — Beam-plasma systems are an important area of study for their application in plasma sources used in plasma processing. However the streaming of beam particles against a stationary plasma excite the two-stream instability. In 1D systems the result of this interaction is axial electrostatic Langmuir waves. However in real systems oblique modes can be excited, resulting in transverse electric fields which lead to the collisionless scattering of beam particles. In this work, using PIC code LSP we study the interaction of a 30eV e-beam with a background plasma using an electrostatic 2D model. By tracking the scalar potential, the beam density, the particle phase space and using Fourier transform techniques, we look for evidence of oblique modes with both parallel and perpendicular wave numbers, study their time evolution and the consequent transverse scattering of beam electrons.

<sup>1</sup>This work was supported in part by the the U.S. Department of Energy.

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Date submitted: 14 Jun 2013

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