

Abstract Submitted  
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**PIC simulations of energetic electron transport in fast ignition<sup>1</sup>**

XIANGLONG KONG, RUI YAN, CHUANG REN, University of Rochester — Transport of an energetic electron beam in a plasma is studied via PIC simulations with beam-plasma parameters and boundary conditions relevant to fast ignition. This system is subject to current-filamentation and two-stream instabilities [Tonge, PhD thesis (2002), Bret, Firpo, and Deutsch, PRE, 70:046401 (2004)]. The simulations show that the current filaments resulting from the instabilities do not merge into a single filament as in the previous 2D simulations excluding the two-stream instability [Lee and Lampe, PRL, 31:1390 (1971)]. The effects of ions and boundary conditions on the current filamenting and merging will also be presented.

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