

Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Reduced Phase-Space Models
of Intense Laser-Plasma Interactions¹ B.A. SHADWICK, LOASIS Program,
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Program, LBNL — We undertake a detailed comparison of a variety of reduced
models — moment based descriptions: warm² and cold fluids as well as fixed-shape
distributions: water bag, *etc.* — to direct solutions of 1-D Vlasov equation³. We
examine the quality of the agreement between the various models as a function of
both initial plasma temperature and plasma wave amplitude. We determine param-
eter regimes of validity for the various reduced models and comment on applicability
of these models to studying laser-driven plasma accelerators.

¹Supported by the US DoE contract DE-AC02-05CH11231 and by the Institute for
Advanced Physics.

²B. A. Shadwick, G. M. Tarkenton and E. H. Esarey, Phys. Rev. Lett. **93**, 175002
(2004).

³B. A. Shadwick, G. M. Tarkenton, E. Esarey, and C. B. Schroeder, “Fluid and
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Physics of Plasmas **12**, 056710 (2005).

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Date submitted: 20 Jul 2006

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