Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Reducing parametric backscattering by polarization rotation[1] IDO BARTH, NATHANIEL FISCH, Princeton University — When a laser passes through underdense plasmas, Raman and Brillouin Backscattering can reflect a substantial portion of the incident laser energy. This is a major loss mechanism, for example, in inertial confinement fusion. However, by slow rotation of the incident linear polarization, the overall reflectivity can be reduced significantly. Particle in cell simulations show that, for parameters similar to those of indirect drive fusion experiments, polarization rotation reduces the reflectivity by a factor of 5. A general, fluid-model based, analytical estimation for the reflectivity reduction agrees with simulations.

[1]This work was supported by NNSA Grant No. DE- NA0002948, AFOSR Grant No. FA9550-15-1-0391, and DOE Contract No. DE-AC02-09CH11466.

Ido Barth
Princeton University Plasma Physics Laboratory

Date submitted: 30 Jun 2016 Electronic form version 1.4