

Abstract Submitted  
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**Using Mixtures of Ion Species to Control Stimulated Brillouin Scattering**<sup>1</sup> RICHARD BERGER, S.H. GLENZER, L. DIVOL, M. ROSEN, N.B. MEEZAN, D. CALLAHAN, Lawrence Livermore National Laboratory — Predicted plasma conditions in ignition targets, planned for the National Ignition Facility (NIF), have the potential to produce stimulated Brillouin Scattering (SBS) of the incoming laser light. Large SBS reflectivity is predicted from some NIF ignition designs. The SBS interaction takes place in hot ( $T_e \sim 5\text{keV}$ ) gold plasma a few hundred microns long in which ion acoustic waves are weakly damped. We show that adding a small fraction of low atomic mass material, *e.g.* Boron, increases the calculated damping significantly and reduces the predicted SBS reflectivity dramatically without affecting the radiation temperature. SBS in mixtures of low-atomic-number species plasmas is well understood both experimentally and theoretically. We will discuss some of the additional effects that collisions in high-Z plasma have on linear and nonlinear ion wave response.

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