Abstract Submitted
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Increasing beam power and energy with the SBS forward energy transfer instability R.K. KIRKWOOD, R.A. LONDON, W.H. DUNLOP, P.A. MICHEL, E.A. WILLIAMS, K.B. FOURNIER, O.L. LANDEN, B.J. MACGOWAN, LLNL — The understanding of the exchange of forward going power and energy between two crossing beams in a plasma [1] is now sufficiently developed that it can be used to enable access to new experimental configurations. The existing models of the process allow the design of beam combiners that will produce higher energy in individual beams for new applications in ignition and HED physics. For example the Energy Partitioning and Energy Coupling (EPEC) [2] program is simulating nuclear events in various environments by delivering energy to the center of a chamber through a narrow tube that allows minimal perturbation of the surrounding region. We will describe the design of gas filled targets that will allow a 2x to 5x increase in the energy in a single NIF quad to enable higher yield events to be simulated in EPEC. These designs as well as advanced ignition target designs will require models with improved precision to predict their performance accurately. We will also compare the predictions of existing and emerging models of wave saturation [3] with the existing experimental data to determine the uncertainty in the models.

[1] P. Michel Physics of Plasmas 2010.
[2] K. Fournier, these proceedings
[3] P. Michel, E. Williams, these proceedings.

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