

Abstract Submitted  
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**Far Superior Control of LPI Is Achieved Using STUD Pulses than RPP, SSD, ISI or Pseudo-STUD Pulses** STEFAN HUELLER, CPhT, Ecole Polytechnique, France, BEDROS AFEYAN<sup>1</sup>, Polymath Research — In a series of simulations using a modified and improved version of the code Harmony, we have compared the Brillouin backscattering reflectivity and ion acoustic wave generation in a STUD pulse<sup>2</sup> (Spike Trains of Uneven Duration and Delay), vs more primitive beam smoothing techniques. The less effective techniques considered are RPP, SSD with realistic and exceedingly high bandwidths, ISI and pseudo-STUD pulses. In the latter, there is rapid temporal variation of the laser profile but always for the same RPP pattern in space. In STUD pulses, each laser spike samples a different RPP pattern. Orders of magnitude reduction in IAW generation and nonlinear reflection is observed in the case of STUD pulses compared to all other competitors. The effects of strong coupling, pump depletion and flow gradients are included.

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<sup>2</sup>Afeyan, B., <http://meetings.aps.org/link/BAPS.2009.DPP.TO5.7>

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