

Abstract Submitted  
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**Silicon-Class Ablators for NIC Ignition Capsules<sup>1</sup>** DARWIN HO, JAY SALMONSON, STEVE HAAN, Lawrence Livermore National Lab — We present design studies using silicon-class ablators (i.e., Si, SiC, SiB6, and SiB14) for NIC ignition capsules. These types of ablators have several advantages in that they: (a) require no internal dopant layers and are robust to M-band radiation; (b) have smooth outer surfaces; (c) have stable fuel-ablator interface; and (d) have good 1-D performance. The major disadvantage for some of the ablators in this class is the relatively smaller ablation stabilization. Consequently, the ablator is more susceptible to breakup caused by RT instabilities. However, smoother outer surfaces on this class of ablators can reduce the effect of RT instabilities. 2-D simulations of SiC ablators show ignition failure despite smooth surfaces and good 1-D performance. But SiB6 and SiB14 ablators exhibit promising behaviors. SiB6 (SiB14) ablators have high 1-D ignition margin and high peak core hydrodynamic pressure 880 (900) Gbar. The ablation scale length for SiB6 is longer than that for SiC and for SiB14 is comparable to that of plastic. Therefore, we expect acceptable performance for SiB6 and less RT growth for SiB14. 2-D simulations are now in progress.

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