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Cone-guided Target Acceleration for Impact Ignition HIDEO NAGATOMO, MASAKATSU MURAKAMI, TOMOYUKI JOHZAKI, HIROSHI AZECHI, ILE, Osaka University — Various ignition schemes have been proposed in laser fusion. One of the latest concepts is Impact ignition [1], which does not include uncertain physics, such as laser plasma interaction, or core heating by hot electrons. In the Impact ignition scheme, one of the most critical issues is how to achieve very high speed projectile made of fuel. If most of the kinetic energy of the impactor is converted into thermal energy, the impactor velocity needs to be 1100–1500 km/s to achieve the ignition temperature of $T_e=5\text{-}10\text{keV}$. In addition, impactor is isolated from impactee, a main fuel part by guiding cone in similar way of Fast ignition. In this study, preliminary numerical simulations were performed for the target acceleration in guiding cone, where radiation transport, shock-wall interaction are included.

[1] M. Murakami and H. Nagatomo, Nucl. Instrum. Methods, Phys. Res., Sect. A 544, 67 (2005).

[2] H. Azechi, et al., Phys. Rev.Lett. 102, 235002 (2009).

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