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Laser-Driven Super-High Velocity Targets for Impact Fast Ignition T. SAKAIYA, H. SAITO, H. AZECHI, K. OTANI, T. WATARI, K. TAKEDA, D. ICHINOSE, H. HOSODA, M. MURAKAMI, K. SHIGEMORI, M. NAKAI, H. SHIRAGA, S. FUJIOKA, H. NAGATOMO, A. SUNAHARA, K. MIMA, Institute of Laser Engineering, Osaka University, M. KARASIK, J. GARDNER, J. BATES, D. COLOMBANT, J. WEBER, S. OBENSCHAIN, Naval Research Laboratory, Washington, D.C., Y. AGLITSKIY, Science Applications International Corporation, McLean, Virginia — In Impact Fast Ignition[1] (IFI), a compressed main fuel is ignited by impact collision of a fragment of separately imploded fuel (impactor). A most critical requirement for the IFI is to achieve a super-high velocity (1000 km/s) of the impactor to form an igniting hot spot by converting the imploding kinetic energy into its own thermal energy. One then needs to substantially suppress Rayleigh-Taylor (RT) instability for a stable acceleration of the target. The super-high velocity is achieved by utilizing such a suppression technique of RT instability as double ablation in high-Z doped targets.[2] We will present the experimental results of the laser-driven planar targets for the IFI.

[1]M. Murakami et al., Nucl. Instrum. Meth. Phys. Res. A **544**, 67 (2005).
[2]S. Fujioka et al., Phys. Rev. Lett. **92**, 195001 (2004).

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