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Measurement of Super High Velocity of Laser-Driven Planar Target for Impact Fusion Ignition T. SAKAIYA, H. SAITO, H. AZECHI, K. OTANI, T. SHIOTA, D. ICHINOSE, K. SHIGEMORI, M. MURAKAMI, S. FUJIOKA, M. NAKAI, H. SHIRAGA, 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, Y. AGLITSKIY, Science Application International Corporation — A totally new ignition scheme of ICF, called "Impact Fusion Ignition (IFI)," has been recently proposed [Nucl. Instrum. Methods A. 67, 544 (2005)], in which a compressed main fuel is ignited by impact collision of a fragment of separately imploded fuel (impactor). A most critical requirement for IFI is to achieve a super high velocity (>1000 km/s) of the impactor. One then needs to substantially suppress Rayleigh-Taylor (RT) instability for a stable acceleration of the target. We have observed super high velocity by utilizing such a RT suppression technique as double ablation in high-Z doped targets [S. Fujioka et al., Phys. Rev. Lett. 92, 195001 (2004)]. We will present and discuss the first experimental results on IFI.

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