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First Intended Experiment for Impact Fusion Ignition H. AZECHI, M. MURAKAMI, H. NAGATOMO, T. SAKAIYA, S. FUJIOKA, H. SHIRAGA, M. NAKAI, K. SHIGEMORI, A. SUNAHARA, Institute of Laser Engineering, Osaka University, S. OBENSCHAIN, M. KARASIK, J. GARDNER, J. BATES, D. COLOMBANT, J. WEAVER, Naval Research Laboratory, Y. AGLITSKIY, SAIC, ILE COLLABORATION, NRL COLLABORATION — Sufficient suppression of the Rayleigh-Taylor (RT) instability not only increases compressed density, but it may also revive an old ignition idea: High velocity implosion with 1000 km/s may configure a hot-spark without a surrounding cold main fuel and thereby ignite at a very low laser energy of 30-100 kJ. A major criticism of no pathway towards high gain may be solved by the impact fusion ignition (IFI) configuration [M. Murakami, NIM-A 05]. In this scheme, a main fuel is first imploded, whereas the ignition is made by impact collision of the second partial shell with high velocity of 1000 km/s. The first intended experiment using a RT suppressed target has demonstrated the velocity of 600 km/s. We plan to employ several RT suppression schemes in attempts to reach higher velocities using the HIPER and NIKE lasers.

Hiroshi Azechi
Institute of Laser Engineering, Osaka University

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