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Collision of high-velocity impactor with high-density plasma as another pathway towards laser fusion ignition HIROSHI AZECHI, TATSUHIRO SAKAIYA, TAKESHI WATARI, HIROSHI SAITO, KAZUTO OHTANI, KAZUO TAKEDA, HIROKAZU HOSODA, HIROYUKI SHIRAGA, MITSUO NAKAI, KEISUKE SHIGEMORI, SHINSUKE FUJIOKA, MASAKATSU MURAKAMI, ATSUSHI SUNAHARA, HIDEO NAGATOMO, KUNIOKI MIMA, ILE, Osaka University, MAX KARASIK, JOHN GARDNER, D.G. COLOMBANT, J.W. BATES, ALEXANDER VELIKOVICH, JOHN SETHIAN, STEVE OBENSCHAIN, Naval Research Laboratory, YAFIM AGLITSKY, SAIC, SHALOM ELIEZER, Soreq NRC, PETER NORREYS, Rutherford Appleton Laboratory — The fast ignition has a potential to have ignition with about one tenth of laser energy required for these programs. However this "conventional" fast ignition approach suffers drawback that physics understanding of hot electron generation and transport is insufficient to make quantitative prediction of the ignition. Here we employ a new approach that totally eliminates this complex problem while keeping the advantage of the compactness of the fast ignition; we accelerated a small portion of the fuel to a super-high velocity to collide with a pre-compressed main fuel. We have observed two orders-of-magnitude increase of neutron yield at the right timing of the impact collision, providing another pathway to compact and reliable fusion energy production

Hiroshi Azechi
ILE, Osaka University

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