

Abstract Submitted  
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**Richtmyer-Meshkov instability in magnetized laser plasmas**

TAKAYOSHI SANO, Osaka University — Richtmyer-Meshkov instability (RMI) is categorized in the interfacial instabilities, which occurs when an incident shock strikes a corrugated contact discontinuity. One of the curious questions related to the RMI is the interaction with a magnetic field. We have performed laser experiments by using the GEKKO laser in Osaka University to evaluate the growth of RMI in magnetized plasmas. The instability is triggered by laser-driven shock wave. An interface forms a CH foil target with surface modulation and nitrogen gas in the chamber. The growth of the interface perturbation is observed by optical radiography and the growth velocity is measured from the time evolution of the mixing layer. We measured the signal of the amplified field by B-dot probe, which shows the clear difference between the RMI growing case and no turbulence case. It is known that the growth of RMI is suppressed significantly when the seed magnetic field is stronger than the critical value, which is typically of the order of 100T in laboratory laser plasmas. We also performed the RMI experiments with a stronger field and observed the reduction of the grow velocity by X-ray radiography. In this talk, we will present our experimental results as well as the theoretical interpretation by the help of MHD simulations.

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