

Abstract Submitted
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Nuclear astrophysics experiments at high-energy-density conditions¹ ALEX ZYLSTRA, DAN CASEY, CHRIS WEBER, JUSTIN JEET, JEFF BURGGRAF, CHARLIE CERJAN, DIETER SCHNEIDER, LLNL, MARIA GATU JOHNSON, JOHAN FRENJE, NEEL KABADI, MIT, HANS HERMANN, YONGHO KIM, LANL — High-energy-density plasmas are an excellent surrogate for astrophysical conditions under which nucleosynthesis occurs. Recent examples of astrophysically-relevant experiments include measurements of the p+D fusion cross section relevant to big-bang nucleosynthesis [A.B. Zylstra et al., Phys. Rev. C 101, 042802(R) (2020)]. Future experiments are being developed to pursue measurements of specific processes occurring in plasmas, including modifications of the cross section due to electron screening effects, which are important for stellar nucleosynthesis models. Work on developing an implosion platform on NIF for electron screening measurements will be presented, in addition to an overview of other nuclear astrophysics work on cross-section measurements and reactions on excited states in the plasma.

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