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Measurements Of Stellar And Big-Bang Nucleosynthesis Reactions Using Inertially-Confined Plasmas[1] ALEX ZYLSTRA, HANS HERRMANN, Los Alamos Nat'l Lab. , MARIA GATU JOHNSON, MIT, YONGHO KIM, Los Alamos Nat'l Lab. , JOHAN FRENJE, MIT, GERRY HALE, Los Alamos Nat'l Lab. , CHIKANG LI, MIT, MIKE RUBERY, AWE, MARK PARIS, Los Alamos Nat'l Lab. , ANDY BACHER, Indiana Univ. , CARL BRUNE, Ohio Univ. , CHAD FORREST, VLADIMIR GLEBOV, ROGER JANEZIC, LLE, DENNIS MCNABB, LLNL, ABBAS NIKROO, GA, JESSE PINO, LLNL, CRAIG SANGSTER, LLE, FREDRICK SEGUIN, HONG SIO, MIT, CHRISTIAN STOECKL, LLE, RICHARD PETRASSO, MIT — The ^{3}He+^{3}He, T+^{3}He, and p+D reactions directly relevant to either Stellar or Big-Bang Nucleosynthesis (BBN) have been studied at the OMEGA laser facility using inertially-confined plasmas, created using shock-driven 'exploding pusher' implosions. These plasmas better mimic astrophysical systems than cold-target accelerator experiments. A new measured S-factor for the T(^{3}He,γ)^{6}Li reaction rules out an anomalously-high ^{6}Li production during the Big Bang as an explanation to the high observed values in metal poor first generation stars. Our value is also inconsistent with values used in previous BBN calculations. Proton spectra from the ^{3}He+^{3}He and T+^{3}He reactions are used to constrain nuclear R-matrix modeling, and recent experiments have probed the p+D reaction for the first time in a plasma.

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Alex Zylstra
Los Alamos Nat'l Lab.

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