

Abstract Submitted
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Measurements of Ion Stopping around the Bragg Peak in High-Energy-Density Plasmas (HEDP)¹ J. FRENJE, C.K. LI, F.H. SEGUIN, M. GATU JOHNSON, R. PETRASSO, MIT, T. NAGAYAMA, SNL, R. MANCINI, UNR, R. HERNANDEZ, UPLGC, P. GRABOWSKI, LLNL, V. YU GLEBOV, LLE — Ion stopping around the Bragg peak and its dependence on plasma conditions was recently measured for the first time in HEDP [1]. The data support most stopping-power models for ion velocities (v_i) larger than the average velocity of the thermal electrons (v_{th}), but there are some differences at $v_i \sim v_{th}$, which could not be validated. The work described here makes significant advances over the first experimental effort by quantitatively assessing the characteristics of the ion stopping around the Bragg peak while at the same time more accurately characterizing the plasma conditions. This effort represents the most sensitive test of plasma-stopping-power models around the Bragg peak to date, which is an important first step in our efforts of getting a fundamental understanding of DT-alpha stopping in HEDP, a prerequisite for understanding ignition margins in various implosion designs. The work was performed under NLUF and supported by DOE, LLNL and LLE. [1] Frenje et al., PRL (2015).

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