

Abstract Submitted  
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**Fast Ion Transport by Magnetic Flux Ropes** ADAM PREIWISCH, WILLIAM HEIDBRINK, HEINRICH BOEHMER, ROGER MCWILLIAMS, University of California, Irvine, TROY CARTER, WALTER GEKELMAN, SHREEKRISHNA TRIPATHI, BART COMPERNOLLE, STEVEN VINCENA, University of California, Los Angeles — Energetic Lithium test ions ( $500 \leq E_{\text{fast}} / T_i \leq 1000$ ) are launched in a Helium plasma in the presence of current-produced magnetic flux ropes at the upgraded Large Plasma Device (LAPD) at UCLA. Perturbing flux ropes are introduced via a hot, biased LaB6 cathode in the main chamber.<sup>1</sup> Ion beam broadening up to fifty percent above background levels is observed in the radial direction after passing through the flux rope region ( $T_{e,\text{max}} = 7\text{eV}$ ,  $B_{\text{perp}} = 7\text{G}$ ,  $\Delta V = 160\text{V}$ ). Density, temperature, and magnetic fluctuation profiles are also obtained. A noise model has been developed to assess the quality of ion signals during the flux rope discharge period. The enhancement to transport may be a result of increased Coulomb scattering, magnetic fluctuations, or electric fields. Further analysis to determine the primary mechanism is ongoing.

<sup>1</sup>B. Van Compernelle, Phys. of Plasmas. **19**, 102102 (2012).

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