

Abstract Submitted
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Beam-Driven Plasma Wakefield Acceleration of Electrons in Lithium and Rubidium Plasmas¹ NAVID VAFAEI-NAJAFABADI, KENNETH MARSH, CHRISTOPHER CLAYTON, CHANDRASEKHAR JOSHI, Department of Electrical Engineering, UCLA, ERIK ADLI², SEBASTIEN CORDE, MICHAEL LITOS, SELINA LI, SPENCER GESSNER, JOEL FREDERICO, MARK HOGAN, DIETER WALZ, JOEL ENGLAND, SLAC National Accelerator Laboratory, WEIMING AN, WEI LU, WARREN MORI³, Department of Physics and Astronomy, UCLA, PATRIC MUGGLI, Max Planck Institute for Physics, JEAN-PIERRE DELAHAYE, CERN — We report on the plasma wakefield experiments performed at the newly commissioned FACET facility at the SLAC National Laboratory. A beam of 2×10^{10} 20.5 GeV electrons was focused through a 20-40 cm long vapor column of lithium or rubidium produced in a heat-pipe oven. The electron beam tunnel-ionized the metal vapor and then drove a large amplitude plasma wake. The resulting interaction was investigated for different plasma densities and beam parameters. The primary diagnostic was the energy gain and loss features observed using an imaging magnetic spectrometer. Preliminary data and a comparison between acceleration in rubidium and lithium plasmas will be presented.

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