

Abstract Submitted
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Low Inductance Z-discharge Metal Vapor (LIZ-MeV) source for high charge state ion production JACOB SPRUNCK, EUSEBIO GARATE, ROGER MCWILLIAMS, ALAN VAN DRIE, University of California, Irvine, ADY HERSHCOVITCH, BRANT JOHNSON, Brookhaven National Laboratory — At the Brookhaven relativistic heavy ion collider, a LIZ-MeV ion-source-based preinjector may be an alternative to the currently-used tandem Van de Graaff. The goal is to generate highly-stripped heavy ions via a high current, high voltage discharge. Based on a previous work,¹ a source has been constructed with low overall impedance and high relative arc-gap inductance. Generated ions are accelerated through a set of extraction electrodes. Currently the electrode material is aluminum, eventually to be replaced with gold and perhaps uranium. To reduce charge exchange the system operates at better than 10^{-7} Torr. Total inductance of the system, including transmission line, is 166 nH. Time-of-flight diagnosis using a Faraday cup measures the energy spectra of extracted ions.

¹N. Debolt, A. Hershcovitch, B.M. Johnson, N. Rostoker, A. Van Drie F. Wessel, Rev. Sci Instrum. **73**, 741 (2002).

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