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Testing A Dual-anode Miniature Electron Beam Ion Trap For The Production Of Highly Charged Ions AUNG NAING, University of Delaware, JOSEPH TAN, National Institute of Standards and Technology — In addition to the central role that highly charged ions (HCI) play in the study of radiative and collisional processes occurring in laboratory and astrophysical plasmas, recent theoretical studies indicate that certain HCI, such as Pr^{9+} and Nd^{10+}, are potentially useful for interesting applications, such as the development of next-generation atomic clocks, quantum information, or the search for variation in the fine-structure constant [1]. Highly charged ions can be produced in an electron beam ion source/trap (EBIS/T) with a strong magnetic field (˜3 T). However, lower magnetic fields are more suitable for abundantly producing the proposed candidate ions with ionization thresholds ranging from 100 eV to 2000 eV. We are developing a room-temperature miniature EBIT (mini-EBIT) for improving the production of such ions. A dual-anode design is suited to the lower electron beam energy compatible with the production of such ions by compensating for the space charge effects. This work presents new features in the design and the construction of the mini-EBIT. Progress on the production of HCI in the mini-EBIT is presented. Reference [1] M. Safronova, *et al.*, PRL **113**, 030801 (2014)

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