Abstract Submitted
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Investigating plasma-rotation methods for the Space-Plasma Physics Campaign at UCLA's BAPSF.[1] S.M. FINNEGAN, M.E. KOEPKE, E.W. REYNOLDS, West Virginia University — In D'Angelo *et al.*, JGR **79**, 4747 (1974), rigid-body ExB plasma flow was inferred from parabolic floating-potential profiles produced by a spiral ionizing surface. Here, taking a different approach, we report effects on barium-ion azimuthal-flow profiles using either a non-emissive or emissive spiral end-electrode in the WVU Q-machine. Neither electrode produced a radially-parabolic space-potential profile. The emissive spiral, however, generated controllable, radially-parabolic structure in the floating potential, consistent with a second population of electrons having a radially-parabolic parallel-energy profile. Laser-induced-fluorescence measurements of spatially resolved, azimuthal-velocity distribution functions show that, for a given flow profile, the diamagnetic drift of hot (>>0.2eV) ions overwhelms the ExB-drift contribution. Our experiments constitute a first attempt at producing controllable, rigid-body, ExB plasma flow for future experiments on the LArge-Plasma-Device (LAPD), as part of the Space-Plasma Physics Campaign (at UCLA's BAPSF).

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