

Abstract Submitted
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Computational Study of Plasma Response to Higher Order RF Multipoles¹ AMANDA BOWMAN, KATARINA GODDEN, NATHANIEL HICKS, University of Alaska Anchorage — Initial results are presented from a computational plasma physics study of radio-frequency (RF) multipole structures containing various quasi-neutral plasma conditions. A particle-in-cell code is used to model a 2D cross section of the structure and enclosed plasma. Multipole orders including $n = 2$ (quadrupole), $n = 4$ (octupole), $n = 8$ (hexadecapole) and so on are compared, along with the corresponding effects on shape of the pseudopotential well that traps particles and the interaction between the external field and plasma, including the formation of the RF plasma sheath. The simulation results are guiding the design of experiments to test some of these multipole configurations in the laboratory.

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