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Theory and Simulation of Axisymmetric Radial Bernstein Modes in a Finite-Length Plasma BRYAN PETERSON, ROSS SPENCER, GRANT HART, Brigham Young University, MARK HUTCHISON, Swinburne University of Technology — We have developed an r-z particle-in-cell code to investigate the behavior of nearly-self-shielding axisymmetric radial Bernstein modes in a finite length plasma in a cylindrical Malmberg-Penning trap. This code allows us to examine both the structure and the frequency shift caused by the finite length as compared with an infinite length cylindrical plasma. The code also allows us to evaluate the possibility of exciting and detecting these modes in an experiment. The simulation results will be compared to a finite length kinetic theory.

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