

Abstract Submitted
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Verification and Study of Soliton Behavior of Trivelpiece-Gould Modes of a Non-Neutral Plasma ZAN ASLETT, GRANT HART, Brigham Young University — The density and z-component of the velocity of a non-neutral plasma were obtained from a 2-D PIC simulation of Trivelpiece-Gould oscillations. Animations of the calculated density and velocity time evolution indicate strong evidence for the existence of two distinct solitons in the plasma. Solitons are described by the counteracting principles of dispersion and nonlinear wave effects which create a single propagating wave envelope. Solitons have several specific defining properties such as stability over large distances and a height dependent propagation velocity. We are currently verifying the existence of soliton-like behavior in the plasma. We will then study the behavior of the solitons during interactions with the boundaries and with each other. These results will be presented.

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