

Abstract Submitted
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Acoustic pulses in dusty plasma 1-ring T.E. SHERIDAN, JAMES C. GALLAGHER, Ohio Northern University — Properties of acoustic pulses in a one-dimensional dusty plasma are studied experimentally. Waves are launched by compressing one end of an incomplete 1-ring having $n = 65$ particles using a laser for laser pulse durations $\Delta t_{\text{laser}} = 0.10\text{--}2.0$ s. This procedure excites a large-amplitude compressive pulse which propagates for a significant distance. The wave amplitude increases with Δt_{laser} for $\Delta t_{\text{laser}} \leq 0.5$ s and then becomes constant. Velocity perturbations up to $\approx 10\%$ of the measured acoustic speed $c = 15.5 \pm 0.2$ mm/s are observed. However, the acoustic speed is independent of wave amplitude, indicating that nonlinear effects are not significant.

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