

Abstract Submitted
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Investigation of acoustic pulses in one-dimensional dusty plasma

JAMES C. GALLAGHER, T.E. SHERIDAN, Ohio Northern University — We have studied the excitation and propagation of acoustic pulses in a one-dimensional dusty plasma with $n = 65$ particles and a lattice constant $a = 1.12 \pm 0.07$ mm. Pulses were launched by applying a 100-mW laser pulse to one end of the chain for laser pulse durations from 0.10 to 2.0 s. We observe large-amplitude damped acoustic waves that propagate for a significant distance. The measured acoustic speed is $c = 15.5 \pm 0.2$ mm/s independent of the laser pulse duration, indicating that the pulse propagation is wave-like rather than solitonic.

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