

Abstract Submitted
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Interaction of a flowing dusty plasma with a biased wire¹ JOHN K. MEYER, JONATHON R. HEINRICH, SU-HYUN KIM, ROBERT L. MERLINO, University of Iowa — We have developed methods of producing flowing dusty plasmas with a controllable flow speed. A three-dimensional dusty plasma is formed by suspending micron-sized glass spheres in a DC glow discharge plasma in argon at $P \sim 150$ mTorr. Dust flows up to supersonic speeds (relative to the dust acoustic speed) have been obtained. We are investigating the interaction of this flowing dusty plasma with a circular cylinder (electrically biased wire). When the wire is biased below the plasma potential, a cylindrical void is formed around the wire within which the dust is excluded. The dust flows around the void boundary. For supersonically flowing dust, a bow shock is formed in front of the object, with an extended wake on the downstream side. The flow of dust around the void has been studied at the individual particle level using high speed video imaging.

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