

Abstract Submitted
for the DPP20 Meeting of
The American Physical Society

Dust-Plasma Interaction in Flowing Plasmas JENS SCHMIDT, Baylor University, GEORG HERDRICH, University of Stuttgart, RENE LAUFER, University of Cape Town, TRUELL HYDE, Baylor University — Over the past several years, an inductively-heated plasma generator IPG6-B located at the Center for Astrophysics, Space Physics and Engineering Research (CASPER) at Baylor University has been established as a flexible experimental research facility for problems in physics and engineering. A primary application for the IPG6-B from initial development forward has been the investigation of complex (dusty) plasma. This talk will examine the interaction between dust particles and spherical obstacles under sub- and supersonic flow conditions. The MHD interaction between the plasma and applied magnetic fields will be examined using charged dust within the plasma to provide an estimate of the feasibility of using the dust as a diagnostic in flowing plasma. Once established, charged dust could then be used to ‘map’ the electric and magnetic field properties of a plasma, in a manner similar to how dust is currently used in PIV measurements to visualize velocities within neutral gas flows. Concurrent experiments examining the manner in which dust interacts with a magnetic field will be conducted in a GEC Reference Cell to provide data under controlled conditions which can be used for refinement of the model.

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Date submitted: 29 Jun 2020

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