

Abstract Submitted  
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**DC response of dust to low frequency AC signals**<sup>1</sup> MICHAEL MCKINLAY, UWE KONOPKA, EDWARD THOMAS, Auburn Univ — Macroscopic changes in the shape and equilibrium position of clouds of charged microparticles suspended in a plasma have been observed in response to low frequency AC signals. In these experiments, dusty plasmas consisting of 2-micron diameter silica microspheres suspended between an anode and cathode in an argon, DC glow discharge plasma are produced in a grounded, 6-way cross vacuum chamber. An AC signal, produced by a function generator and amplified by a bipolar op-amp, is superimposed onto the potential from the cathode. The frequencies of the applied AC signals, ranging from tens to hundreds of kHz, are comparable to the ion-neutral collision frequency; well below the ion/electron plasma frequencies, but also considerably higher than the dust plasma frequency. This presentation will detail the experimental setup, present documentation and categorization of observations of the dust response, and present an initial model of the response.

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