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Measurement of Thermal Effects in the Dispersion Relation of the Dust Acoustic Wave¹ JOSHUA HOYNG, JEREMIAH WILLIAMS, Wittenberg University — A complex or dusty plasma is a four-component plasma system composed of ions, electrons, neutral particles and charged microparticles. The presence of these charged microparticles reveals different plasma phenomena, including a new wave mode known as the dust acoustic, or dust density, wave (DAW). The DAW is a low frequency, longitudinal mode that propagates through the microparticle component of the dusty plasma system and is self-excited by the energy from the ions streaming through this component. In recent years the DAW has been the subject of intense study and has provided a way to examine the thermal properties of the microparticle component. In this presentation, we report the results of an experimental study examining the thermal effects in the dispersion relation of this wave mode over a range of neutral gas pressures.

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