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New Charge Analysis technique for Magnetized Dusty Plasma Flows DYLAN FUNK, UWE KONOPKA, EDWARD THOMAS, Auburn University — Dusty plasmas consist of the standard plasma components (electrons, ions and neutrals) as well as micrometer sized particles. The dust particles are highly charged as a result of their interaction with the other plasma components. The charge of these dust particles is a difficult quantity to estimate precisely, especially when under the influence of a magnetic field. Because of this difficulty, a method for the experimental determination of the dust particle charge under the influence of a magnetic field is required. Our method utilizes the Lorentz force acting on the moving particles due to the static magnetic field. A dust particle density gradient will build up due to the Lorentz force. Utilizing a molecular dynamic simulation we plan on showing how the dust charge value can be determined non-invasively to a higher degree of precision.

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