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Molecular dynamics simulation of a magnetized dusty plasma using the DEMON code[1] JAMES SCHLOSS, MARK CIANCIOSA, EDWARD THOMAS, Auburn University — A dusty plasma is a four-component plasma system consisting of electrons, ions, neutral atoms, and charge microparticles (i.e., "dust"). The dynamics of a dusty plasma can often be simulated using molecular dynamics techniques to model the behavior of the charged microparticles in the background plasma. DEMON (dynamic exploration of microparticle clouds optimized numerically) is a modular, object-oriented, molecular dynamics code that has been used to simulate particle transport and waves in a dusty plasma [R. Jefferson, et al., Phys. Plasmas, 17, 113704 (2010)]. Recently, the DEMON code has been modified to include magnetic field effects on the microparticles. This presentation will report on benchmarking magnetic field effects on a dusty plasma in DEMON simulations. Use of the simulation results to aid in interpreting experimental measurements of magnetized dusty plasmas may also be discussed.

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