

Abstract Submitted  
for the 4CF15 Meeting of  
The American Physical Society

**Vortex Rectification Resulting from Thickness Modulation in Superconducting Granular-Aluminum Films** WESTON MAUGHAN, AUGUST DEMANN, STUART FIELD, Colorado State University — A periodic modulation in the thickness of superconducting granular-aluminum films can result in the rectification of vortex motion. In our experiments, vortices are driven in both directions across a sample and the resulting voltages are measured. Differences in the voltages corresponding to motion in opposite directions imply that the vortices move more readily in one direction, leading to an overall *rectification* in their motion. Measurements were taken at various applied magnetic fields and temperatures for flat reference films, symmetric films with a sinusoidal thickness modulation, and asymmetric films with a “sawtooth” thickness modulation. Clear rectification effects are observed; however, their interpretation is complicated by other sources of vortex pinning. In order to reduce pinning due to surface roughness, the samples were smoothed by argon ion bombardment. While smoothing the samples in this way has shown promising reductions in the background pinning, edge effects also appear to contribute to the rectification. In future work, we plan to suppress edge pinning by tapering or texturing the edges.

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Date submitted: 10 Sep 2015

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