

Abstract Submitted
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Thickness and field dependence of the driven dynamic mode-splitting of magnetic vortices¹ KRISTEN BUCHANAN, Colorado State University — We have explored the effects of increased driving field amplitude on the dynamics of magnetic vortices using a microwave reflection technique and found that the vortex translational eigenmode profile first takes on a distorted shape and then splits into two well-defined peaks as the field is increased [1]. Here we examine the thickness and field dependence of this mode-splitting phenomenon via measurements of lithographically patterned micron-sized Permalloy ellipses with thicknesses of 20, 40, and 60 nm. The experimental results will be compared to numerical calculations that incorporate a critical velocity parameter and provide new insight into the origin of the observed vortex dynamic mode splitting. Acknowledgments: Thank you to Marcos Grimsditch, Frank Fradin, Sam Bader, and Val Novosad for stimulating discussions. [1] Buchanan et al. PRL 99,267201 (2007).

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