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**Micromagnetic simulations of antivortex formation**[1] MARTIN ASMAT-UCEDA, KRISTEN BUCHANAN, Colorado State University — Magnetic vortices are fundamental magnetic structures that form in patterned ferromagnetic materials. The study of magnetic vortices is an active field of research at present, in part because of the potential for new technologies. In addition to vortices, so called antivortex states have been found in some particular geometries such as four connected rings and cross-like nanomagnets. Antivortices may be useful for nonvolatile data storage applications, and they are also expected to show unusual transport properties in an applied magnetic field, for example, a "topological" Hall effect. In order to make use of magnetic antivortices, it is important to first understand how to stabilize systems that contain only a single antivortex. Micromagnetic calculations have been performed with OOMMF and LLG software to explore how the geometry of the structure affects the formation and stability of the antivortex state and whether the field history can be used to reliably select the state.

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Martin Asmat-Uceda
Colorado State University

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