Confinement distance of the closure structure around a single
hole in a 2D magnetic thin film\textsuperscript{1} M. VELEZ, G. RODRIGUEZ-RODRIGUEZ,
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28760 Madrid, Spain — One common feature in many magnetic nanostructures,
such as nanorings or patterned thin films \cite{1}, is the existence of non magnetic holes
within the magnetic material. However, up to now, the simple problem of a a single
non magnetic hole in a 2D magnetic film has received little attention, even though
it is qualitatively different from the blade domains that appear around holes in 3D
magnetic material. In this work \cite{2} this basic problem has been analyzed in detail
by magnetic force microscopy, micromagnetic simulations and an analytical model.
The closure magnetization configuration can be described by two -1/2 half vortices
located at the hole edge along the easy anisotropy axis, and confined within a dis-
tance $L$ that is determined by the minimization of magnetostatic and anisotropy
energies constrained by the magnetic charge conservation within the system. \cite{1} A.

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