## **Curvilinear Micromagnetism**



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## Role of the shape anisotropy on the magnetization reversal in curved surfaces

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In the last years, a strong interest has been focused on the properties of curved magnetic structures. An important aspect of these systems is the possibility of controlling the magnetic behavior at the nanoscale by changing the curvature. This interest has been reinforced by the development of a theory that allows to calculate the exchange energy of nano magnets with arbitrary shapes, which has been used to study the magnetic properties of Möbius stripes, helical wires and DWs in a paraboloidal local bend of nanowires.

In this work, we studied the magnetization reversal process as a function of curvature, in nanotubes with a truncated tubular cross-section. Using a theoretical formalism, we obtain a phase diagram for the DW mechanism as a function of curvature (transversal and vortex-like domain walls). In the ultra thin limit, our results can be interpreted assuming that curvature generates an effective anisotropy in the structure.

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