

Magnetic cylindrical nanowires with single modulated diameter

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Nucleation and propagation of a domain wall along a modulated wire as a function of its geometry has been investigated. In all the cases, nucleation began at the thicker section and propagated toward the thinner section, regardless of the reversal mode. At the interface, the wall was pinned and a higher nucleation field was required to continue the propagation of the wall. This behavior led to the existence of two nucleation fields along each branch of the hysteresis curve. © 2009 The American Physical Society.