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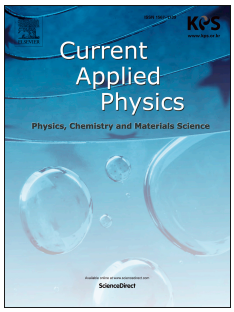

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Field-controllable injection of virtual magnetic domain wall in discrete magnetic nanodot chains

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Abstract

Periodic injection behaviors of virtual magnetic domain wall (VDW) have been systematically investigated in asymmetrically shaped nanodot chains by means of micromagnetic simulations. Systematic investigation on a controllable VDW injection has been carried out. We demonstrate that precise control of VDW injection is achievable by using different nanodot shapes as well as by changing alternating magnetic field (AC field) profiles. The VDW position can be tuned by adjusting AC field frequency and amplitude. Field-controllable periodic VDW injection phenomenon is found to be sustainable over wide ranges of phase diagram spanned by AC field frequency and amplitude.

Key words: magnetic nanodot chain, micromagnetic simulation, domain wall injection, virtual domain wall

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