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Ørsted Field Influence on Current Induced Periodical Structures in Ferromagnetic Nanostripes

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In our work, we have studied an action of strong perpendicular pure spin-current on the nanomagnets of various forms: planar two-dimensional films [1, 2], narrow onedimensional wires [3] with square cross-section and long stripes with rectangular cross-section [4]. In all these cases we have found periodical magnetization structures induced by spin-current. Also we found out that in the case of thin Ni-stripes the current-induced Ørsted field is weak and does not change significantly the form of the periodical magnetization structures. In the case of thin Py-stripes the saturated single domain state becomes unfavourable and two-domain state with longitudinal domain wall appears instead.

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- [2] Yu. Gaididei, et. al., *Phys. Rev. B*, **86** (2012), p. 144401.
- [3] V.P. Kravchuk, et. al., *Phys. Rev. B*, **87** (2013), p. 224402.
- [4] O.M. Volkov, et. al., *Appl. Phys. Lett.*, **103** (2013), p. 222401.