

SATURATION OF MAGNETIC  
FILMS WITH SPIN-POLARIZED CURRENT  
IN THE PRESENCE OF A MAGNETIC FIELD

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S u m m a r y

The influence of a perpendicular magnetic field on the process of transversal saturation of ferromagnetic films with spin-polarized current is studied theoretically. It is shown that the saturation current  $J_s$  is decreased (increased) in the case of the codirected (oppositely directed) magnetic field and the current. There exists a critical current  $J_c > J_s$ , which provides a “rigid” saturation – the saturated state is stable with respect to the transverse magnetic field of any amplitude and direction. The influence of a magnetic field on the vortex-antivortex crystals, which appear in a pre-saturated regime, is studied numerically. All analytical results are verified using micromagnetic simulations.