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The influences of transverse magnetic anisotropy on field-induced domain wall propagation in magnetic nanowires JIE LU, PENG YAN, XI-ANGRONG WANG, Physics Department, the Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong SAR, China, MICROMAGNETIC SIMULATION TEAM — Domain wall (DW) propagation in magnetic nanowires is an important subject in nanomagnetism because of its fundamental interest and potential applications in spintronic devices. It is well known that a head-to-head (or tail-to-tail) domain wall in a nanowire will propagate along the wire under an axial magnetic field. In this talk, we shall show that a new velocity-field formula can fit well with numerical results obtained from the open-source micromagnetic simulation package OOMMF. The fitting parameters have clear physical meanings that relate to the transverse magnetic anisotropy. How the transverse magnetic anisotropy, which can be modified by both transverse magnetic field and the aspect ratio of wire cross section, affects the DW structure and hence the DW propagation velocity will be discussed systematically.

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