

Two-Dimensional Symmetrical Bloch-Type Boundaries in Thin Films

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The two-dimensional structure of 180° Bloch walls in uniaxial and cubic thin ferromagnetic films is evaluated by an approximate analytic solution of the constitutive micromagnetic equations under symmetrical boundary conditions. The resulting magnetization configuration exhibits a more or less pronounced surface flux closure by symmetrical contraction depending upon the actual film thickness. The corresponding value of the total energy per unit wall area as a function of film thickness is compared to earlier one- and two-dimensional treatments.