Néel regions in 180° Bloch walls

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High-resolution Bitter patterns of subdivided 180° Bloch walls on iron whiskers show an irregular arrangement of substructures with a reduced stray field. The three-dimensional configuration of these Néel regions is derived by an analytic solution of the constitutive micromagnetic equations. The energy with respect to the wall increases with increasing distance to the surface of the crystal. This permits an estimation of the equilibrium depth of the Néel regions.