9.7 cm

ON PERIODIC BOUNDARY CONDITIONS IN MICROMAGNETIC SIMULATIONS

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The complexity of the theoretical description of multiphase magnetic materials usually requires the numerical treatment. One of the possible approach is the numerical micromagnetics that experience the renaissance from the early 90^{th}. It is well known that the solution of micromagnetic set of differential equations strongly depends on the boundary conditions of the problem. In order to exclude the surface effects the periodic boundary conditions are used. The choice of the period size is a result of a competition of two factors: i) it should be big enough to minimise the self-interaction artefacts and ii) as small as possible to minimise the calculations costs. We present the dependence of numerical results on the period size, based on micromagnetic simulations of a nanocrystalline soft magnetic material.

13.4 cm

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