

Chaos in a dynamic formation of magnetic vortex structures

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Owing to unique non-trivial dynamic and static properties as well as prominent applications in information technologies, magnetic vortex structures have recently been attracted much attention. To realize such systems in applications, a reliable control of vortex states is necessary and which requires a complete understanding and manipulating of the detailed dynamic formation process of vortex states. From micromagnetic simulations, it will be seen that dynamic formation process is nonlinear as well as chaotic and thus, the resultant vortex state depends sensitively on initial conditions. Moreover, by means of manipulating initial conditions, we propose an efficient method to control the vortex states.

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