

Stability of domain walls in ferromagnetic rings

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SUMMARY

The ferromagnetic materials are a permanent magnets that are used to store numericals data. On of the most innovative technologies that would ensure optimized storage with fast access to information is the use of stable ferromagnetic nanowires.

In this work we improve the simplified ring model used by S. Labbé, Y. Privat And E. Trélat where they obtained the instability of all the wall configurations. We consider a one dimensional ferromagnetic ring model taking into account the effects of curvature and anisotropy. We describe all the planar static solutions representing domain walls and we study their asymptotic stability. We let's show for example that the solution becomes unstable when the number of walls is great.

Keywords: ferromagnetism, ring, Landau-Lifschitz equation, stability, domain walls,...

References

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