Hysteretic effects in ferromagnetic materials

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SUMMARY

In this presentation we will focus on the hysteretic phenomenas in ferromagnetic materials [1]. The characterisation of the hysteretic phenomenas in 3D models of ferromagnetic materials is particularly complex and a first analysis of reduced model (2D, 1D or 0D asymptotics) is necessary. In this context, we will present the underlying difficulties in the analysis and modelling of the ferromagnetism hysteresis and expose asymptotic results obtained for asymptotic models, in the deterministic or stochastic frameworks.

The presentation will based upon works in collaboration with ric Dumas [2] for the 3D problem for from bifurcations and complete problem for particular domains ; Jrme Lelong for stochastic 0D problem [3] and the research group of the ERC PUC [4].

Keywords: asymptotic analysis, Gamma-convergence, modeling, micromagnetism

AMS Classification: 35M13, 58J37, 35Q93

References

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