About the dynamics of the Landau-Lifshitz equation

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In this talk we survey several results concerning dynamical aspects of the Landau-Lifshitz equation, including the derivation of two asymptotic regimes towards the Sine-Gordon and cubic nonlinear Schrödinger equations, as well as the orbital and asymptotic stability of solitons in the special case of the 1D equation with easy-plane anisotropy. This talk is based on joint works with André de Laire (University of Lille) [3, 4, 5], and by Yakine Bahri (British Columbia Investment) [1, 2].

[1] Y. Bahri. *Asymptotic stability in the energy space for dark solitons of the Landau-Lifshitz equation.* Anal. PDE, **9(3)**, 645–697, 2016.

[2] Y. Bahri. *On the asymptotic stability in the energy space for multi-solitons of the Landau-Lifshitz equation.* Trans. Amer. Math. Soc., **370(7)**, 4683–4707, 2018.

[3] A. de Laire, P. Gravejat. *Stability in the energy space for chains of solitons of the Landau-Lifshitz equation.* J. Differential Equations, **258(1)**, 1–80, 2015.

[4] A. de Laire, P. Gravejat. *The Sine-Gordon regime of the Landau-Lifshitz equation with a strong easy-plane anisotropy.* Ann. Inst. Henri Poincaré, Analyse Non Linéaire, **35(7)**, 1885–1945, 2018.

[5] A. de Laire, P. Gravejat. *The cubic Schrödinger regime of the Landau-Lifshitz equation with a strong easy-axis anisotropy.* Rev. Mat. Iberoam., **37(1)**, 95–128, 2021.

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