Walls in bent Ferromagnetic Nanowires

Abdel kader Al SAYED, **Gilles Carbou**[1], **Stphane Labbé**[2],

SUMMARY

In this work we study a one-dimensional model of bent ferromagnetic nano-wire. We prove the existence of static solutions describing either one domain or two domains separated by a domain wall. We address the stability of these solutions. In particular we exhibit asymptotically stable wall profiles which are pined at the bent zone even in presence of a small applied magnetic field. We also perform numerical simulations using scilab with an explicit scheme in order to illustrate the obtained stability result.

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

References

[1] AUTHORS. *Book title*. Publisher, city, year.

[2] AUTHORS. Article title. *Name of the journal* **volume**(number), first page–last page, year.

[3] AUTHORS. Article title. In *Proceedings title*, editors' names (eds.), pp. first page–last page. Publisher, city, year.

[1]LMAP
 Université de Pau et des pays de L'Adour
 email: `abdelkader.alsayed@univ-pau.fr`

[2]LMAP
 Université de Pau et des pays de L'Adour
 email: `gilles.carbou@univ-pau.fr`

[3]LJK
 Université de Joseph-Fourier-Grenoble
 email: `stephane.labbe@imag.fr`