

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

FMR spectroscopy of individual nanopillars GREGOIRE DE LOUBENS, VLADIMIR V. NALETOV¹, OLIVIER KLEIN, CEA Saclay, Service de Physique de l'Etat Condense — We have performed FMR spectroscopy on perpendicularly magnetized hybrid nanopillars (lateral sizes range between 500 nm and 2 μm) using a Magnetic Resonance Force Microscope. The sensitivity of this technique allows us to measure an individual sample. Firstly, 100 nm thick Permalloy (Py) disks sandwiched by Cu have been studied. It is found that the lowest energy mode is an edge mode localized at surfaces instead of being the uniform precession. The study of the dynamics in the non linear regime shows that the damping of this edge mode decreases with increasing power, which favors its excitation at high power level compare to the other modes. Secondly, Py100/Cu10/Py10 (nm) devices showing GMR effect have been measured and we have studied the spectral changes induced by high DC current densities J flowing through them. FMR spectra at $J=0$ are compared to those of single magnetic layer disks and qualitatively interpreted. The influence of the Oersted field and of the temperature increase when $J \neq 0$ is quantified and a small effect of spin transfer is extracted.

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Date submitted: 11 Jan 2006

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