Service de Physique de l'Etat Condensé (SPEC)
Département de Recherche sur l'Etat Condensé, les Atomes et les Molécules
Direction des Sciences de la Matière
Commissariat à l'Energie Atomique

Séminaire du SPEC

Jeudi 5 avril 2007, 11h00

Bt. 774 - Salle Claude ITZYKSON
Centre d'Etudes de Saclay, Orme des Merisiers
91191 Gif-sur-Yvette

ATTENTION : jour inhabituel

Séminaire exceptionnel du groupe nanomagnétisme

Ultrafast magnetization dynamics by time-resolved anisotropic magnetoresistance measurements

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The control of ultrafast magnetization reversal processes in multilayer nanostructures and magnetic thin films is of major importance for future magnetic memory devices. Experimental access to the magnetization dynamics is then, needed. Time resolved magnetoresistance measurements seem to be an excellent tool to study the magnetization dynamics of individual magnetic nanostructures, like spin valves and magnetic tunnel junctions. Indeed, the relative high giant magnetoresistance and tunneling magnetoresistance of such devices provide easy access to the damping term of the magnetic free layer. However, it is difficult to estimate the influence of adjacent magnetic and non-magnetic layers of the multilayer nanostructure to the magnetization motion of the free layer.

Here, we present the study of the magnetization dynamics of individual microstructured Permalloy thin film devices by time resolved measurements of the anisotropic magnetoresistance (AMR). This technique can be applied to study the magnetization precession and damping of a wide variety of individual ferromagnetic nanolayers.

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