

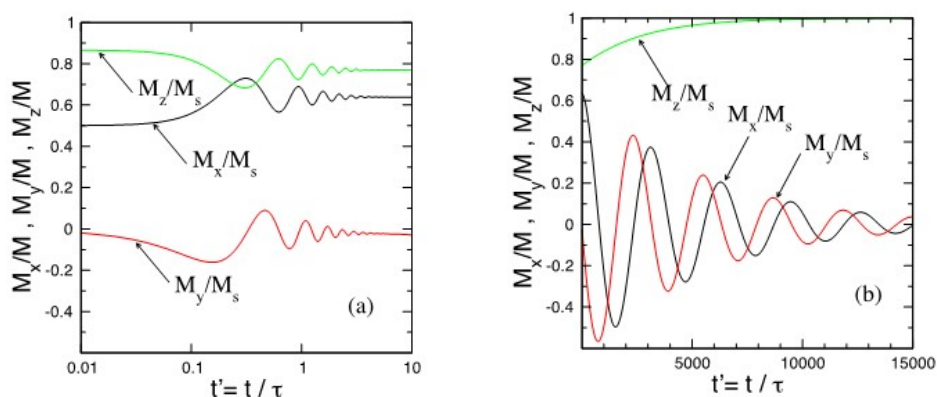
Inertial dynamism of macrospin

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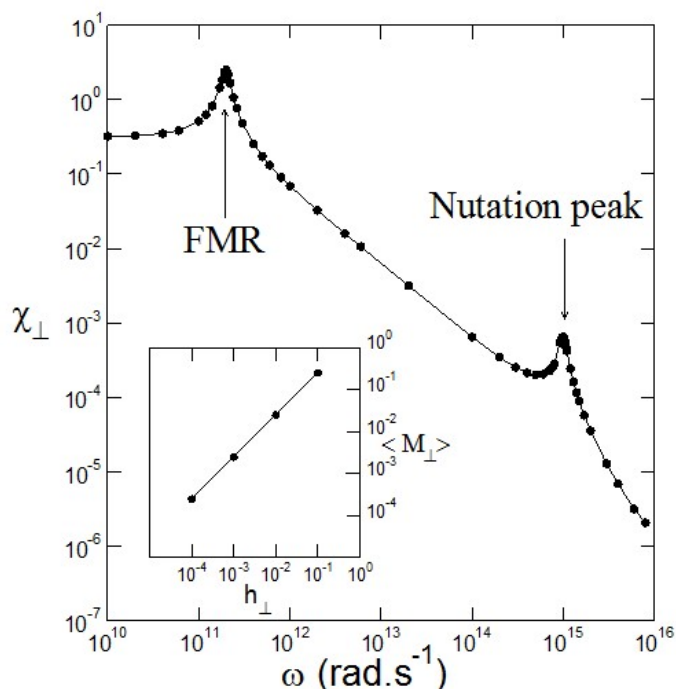
The magnetization dynamics is of primary interest to build new devices within the spintronic technology where the spin of the electron is used as a carrier of information.

Beyond the ferromagnetic resonance : the inertial resonance

We numerically investigated the inertial regime of the uniform magnetization dynamics that is predicted to occur at short time scales within the generalized Gilbert equation. The time dependence shows a typical nutation behavior that is superimposed to the usual precession of the magnetization around the static magnetic field. In the frequency domain, a second inertial resonance peak at high frequency-added to the usual ferromagnetic resonance-takes place in the vicinity of the nutation frequency.



Nutation oscillations at short time scales and precession dynamics at large time scales.



Resonance curve of the transverse susceptibility

Collaboration : J.E. Wegrowe, LSI (Laboratoire des Solides Irradiés) Ecole Polytechnique, Palaiseau, (France).
Reference : Applied Physics Letters 100 192407 (2012).

