

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Reduction of the FMR damping in the nonlinear regime. OLIVIER KLEIN, GREGOIRE DE LOUBENS, VLADIMIR V. NALETOV¹, CEA Saclay, Service de Physique de l'Etat Condense — It is well known in magnetic resonance, that the Gilbert damping coefficient cannot be extracted directly from the linewidth measurements. The later quantity only yields an upper bound value of the coupling to the lattice. In contrast simultaneous measurement of the microwave susceptibility and the longitudinal component of the magnetization gives directly the ratio between energy stored over the energy absorbed in the sample. This quantity is proportional to the spin-lattice relaxation rate of the excited system. We have recently measured the power dependence of this ratio in the nonlinear regime of YIG samples. Surprisingly, we find that the energy damping coefficient decreases dramatically above the Suhl's threshold while the linewidth increases.

¹also at: Physics Department, Kazan State University.

Andrei N. Slavin
Oakland University

Date submitted: 11 Jan 2006

Electronic form version 1.4