

Reduction of the spin-wave damping induced by nonlinear effects

De Loubens G., Naletov V., Klein O.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

This paper reports a detailed measurement of M_z , the component parallel to the effective field direction, when ferromagnets are excited by microwave fields at high power levels. It is found that M_z drops dramatically at the saturation of the main resonance. Simultaneous measurements of M_z and absorption power show that this drop corresponds to a diminution of the spin-lattice relaxation rate. These changes are interpreted as reflecting the properties of longitudinal spin waves excited above Suhl's instability. © 2005 The American Physical Society.

<http://dx.doi.org/10.1103/PhysRevB.71.180411>
