

Abstract Submitted
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Effect of rapid thermal annealing on ferromagnetic resonance line width of CoFeB thin films YAPING ZHANG, XIN FAN, WEIGANG WANG, XING CHEN, Department of Physics & Astronomy University of Delaware, CHAOYING NI, Department of Materials Science University of Delaware, RONG CAO, JOHN XIAO, Department of Physics & Astronomy University of Delaware — Magnetization dynamics has attracted much attention recently due to their implication on magnetic recording and storage applications. CoFeB material is one of most common magnetic layers used in MgO based magnetic tunnel junctions (MTJs). Unlike traditional thermal treatments, a giant Tunneling Magnetoresistance can be archived by rapid thermal annealing (RTA) [1]. We show the effect of RTA on magnetization dynamics. CoFeB thin film, subjected to RTA at 380 °C for various time, was investigated by ferromagnetic resonance (FMR) measurement. It is found that FMR linewidth reaches a minimum at 60 second annealing, after which the linewidth increases with annealing time. A clear trend of decreasing of uniaxial anisotropy and increasing of cubic anisotropy with annealing time indicates that competition between these anisotropies plays an important role in linewidth evolution. [1] WG. Wang et al., Appl. Phys. Lett. 92, 152501 (2008).

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