

Structural and magnetic properties of $\text{Y}_3\text{Fe}_5\text{O}_{12}$ thin films grown by Pulsed Laser Deposition

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Yttrium Iron Garnet has recently attracted considerable attention because it is expected to find applications in novel electronic devices. Such applications require the fabrication of thin films with a high structural and magnetic quality. Here, we report on the properties of nanometer-thick YIG films grown by means of pulsed laser deposition. We show that PLD technique allows for the epitaxial growth of YIG films with low surface roughness and bulk-like magnetization. The damping parameter is of one order of magnitude lower than that of Permalloy or CoFeB thin films. Increased values of anisotropy fields, observed in our films, are attributed to a slight non-stoichiometry and consequent rhombohedral lattice distortion confirmed with X-ray diffraction.

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