

Effect of cerium doping on the magnetic properties of yttrium iron garnet thin films on quartz substrates

A. Hasanpour^{*1}, M. Gharibshahi¹, M. Niyafar¹

1. Department of physics, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran

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Abstract: In this study, cerium substituted yttrium iron garnet thin films with nominal formula $Y_{3-x}Ce_xFe_5O_{12}$ and different x value ($x = 0, 0.1, 0.3, 0.5, 0.7$) were fabricated on quartz substrates via sol-gel method and spin coating technique. Samples taken to check physical characteristics. The effect of Ce doping on the structural properties, surface morphology and magnetization of the films were studied respectively by X-ray diffraction analysis (XRD), atomic force microscopy (AFM), and vibrating sample magnetometer (VSM). (AFM) image of annealed samples showed that the thin films had a smooth and continuous surface.

Keywords: Ce:YIG, Sol-gel, thin layer

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^{*} Corresponding author, Tel: 09133022831, Email: hasanpour88@gmail.com