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Synthesis and study of GdAlO3 doped Er^{+3}

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In this paper we have study the structural and optical properties of GdAlO3 doped Er+3 prepared by the solid state reaction and co-precipitation method, for this last; both aluminum source (nitrate and sulfate) were used in order to see these effects on structural and optical properties through X-ray diffraction (XRD) patterns and Raman diffusion.

The XRD spectrum identification of samples synthesized by the solid state method show a multiphase solution, on the other hand, the chemical co-precipitation method, expressed by precipitating agent NH4HCO3, made it possible to form the single-phase peroveskite which crystallized in orthorhombic phase with Pnma space group and lattices parameters a=5.2485532, b=5.29181462, c=7.44544975 specially for Nitrate Aluminum source compared with sulfate aluminum source which made it possible to obtain. Raman study Aluminum Gadolinium Oxide non-doped and doped was used to evaluate the obtained materials.

Keywords GdAlO3: Er^{+3} Co-precipitation solid-state XRD spectroscopy Raman

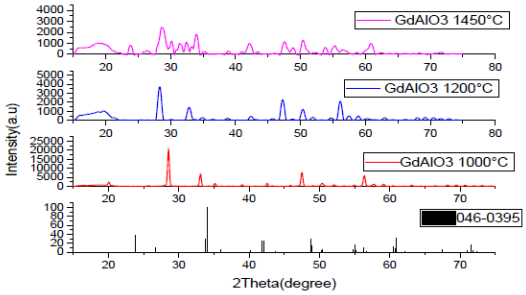

Fig. 1. XRD spectral profiles of GdAlO3 synthesized by the solid state with their JCPDS

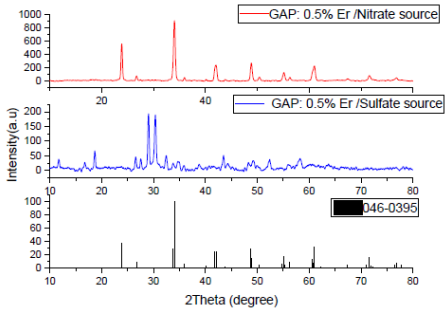

Fig. 2. XRD spectral profiles of GdAlO3 synthesized by Co-precipitation with their JCPDS