

Bulk Growth, Structural and Optical Properties of Pure and Doped 1, 3, 5-Triphenylbenzene Crystal by Sankaranarayanan-Ramasamy method for Scintillator Applications

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The present work is elaborate unidirectional bulk growth and characterization of 1,4-diphenyl-1,3-butadiene (DPB) and 2,5-diphenyloxazole (PPO) doped 1,3,5-triphenylbenzene (3PB) crystal from solution by unidirectional Sankaranarayanan-Ramasamy (SR) method. The investigation of XRD, UV-Vis-NIR absorption and transmittance studies were carried out for the pure and DPB, PPO doped 3PB crystals. The lattice parameters and phase analysis of doped crystals by XRD were confirmed orthorhombic crystal structure. The distortion in XRD and UV-Vis-NIR transmission spectra reveals that the incorporation of dopant molecules in 3PB.

Keywords : Organic Scintillator crystals, SR growth technique, Doped Organic Scintillator