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# Exploring the impressive nonlinear optical and dielectric properties of cadmium thiourea acetate crystal doped with oxalic acid

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## Abstract

The present communication is aimed to investigate the remarkably improved properties of oxalic acid (OA) doped bis cadmium thiourea acetate (CTA) crystal. The commercial slow solvent evaporation method has been employed to grow the pure and OA doped CTA crystal. The structure and unit cell parameters of grown crystal were determined by means of powder X-ray diffraction technique, which confirmed orthorhombic crystal structure. The optical transparency of OA doped CTA crystal (78%) has been ascertained in the visible region (200-900 nm) using the UV-visible spectral analysis. The assertive influence of OA on the dielectric behavior of host CTA crystal was investigated in the temperature range 35-120 $^{o}$C by means of dielectric studies. Doped crystal showed lower dielectric nature than parent. The nonlinear response of OA-CTA crystal was confirmed by Kurtz-Perry test.. The SHG efficiency of OA-CTA crystal is found to be higher than potassium dihydrogen phosphate (KDP) crystal. Obtained results confirmed suitability of OA doped CTA crystal for photonic device applications.

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