

Abstract Submitted
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Spectroscopic and thermal studies of amino acid doped Potassium Dihydrogen Phosphate crystals JAYESH GOVANI, Physics Department, University of Texas at El Paso, El Paso, TX 79912, USA, MIHIR JOSHI, DIPAK DAVE, KETAN PARIKH, Physics Department, Saurashtra University, Rajkot, Gujarat 360 005, India , FELICIA MANCIU, Physics Department, University of Texas at El Paso, El Paso, TX 79912, USA — Potassium dihydrogen phosphate-based materials (KDP) are extensively used for non-linear optical applications. The samples for the current studies were prepared in 8 to 10 days by slow evaporation solution growth technique. Thermal gravimetric analysis of L-histidine amino acid doped KDP crystals demonstrate that the decomposition of the sample occurred at slightly lower temperatures with increasing doping amount. The powder X-ray diffraction patterns reveal a single phase nature with the unit cell parameters being unaltered by doping. Although the main bands observed in the infrared absorption spectra correspond to KDP crystals, the existence of vibrational lines at 1634 cm^{-1} , 1714 cm^{-1} , 2854 cm^{-1} , and 2923 cm^{-1} , which are attributed to the degenerate deformations of NH_3^+ groups and of unprotonated monoclinic L-histidine ring, demonstrate that successful doping was achieved. This affirmation is supported with more evidences from FT-Raman measurements.

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