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Suppression of ferroelectricity in YCrO₃ RAJEEV GUPTA, Department of Physics, IIT Kanpur, ASHISH GARG, Department of Materials Science and Engineering, IIT Kanpur, ASHISH MALL, Materials Science Programme, IIT Kanpur — We report the results of temperature dependent X-ray diffraction (XRD) and Raman spectroscopy measurements on YCrO₃. X-ray diffraction studies carried out up to 900K and subsequent Rietveld refinement of the data show that there is no evidence of any structural phase transition in YCrO₃ across the paraelectric to ferroelectric phase transitions ($T_C \sim 470\text{K}$) and the material retains the orthorhombic structure with *Pnma* space group. Subsequently, temperature dependent unpolarized Raman spectroscopy measurements, from 300 K to 600 K, were carried out to investigate the role of phonons across the T_C . All Raman lines below 600 cm^{-1} are assigned to definite phonon modes of *Pnma* structures on the basis of comparison to a previous experiment at room temperature. For further analysis of the Raman data, the line shape parameters were obtained by fitting a Lorentzian function to each peak. YCrO₃ shows a strong anomalous temperature variation near T_C in the peak positions and line widths for selected modes as a function of temperature. .

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