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### Growth, structural, vibrational, optical, mechanical studies of Boric acid doped KAP single crystal

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**Abstract:** The growth and characterization of boric acid doped potassium acid phthalate (KAP) single crystals grown from low temperature solution growth method. The cell parameters were determined by single crystal X-ray diffraction analysis. The presence of various functional groups of boron doped KAP is confirmed by FTIR. The UV-Vis-NIR spectrum reveals the high percentage of transmission of the sample in the entire visible region. The DSC curve indicates that the crystal is structurally stable upto 299°C. Microhardness investigations are conducted on the grown crystals. The SHG of boric acid doped KAP is confirmed by Kurtz powder technique.

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