

## PHONON FREQUENCY SPECTRUM OF HTSC : EuBaCuFeO<sub>5</sub>

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### ABSTRACT

The assignments of spectral features to specify lattice vibrations are an important step to understand their role of superconductivity. Raman and infrared studies have contributed significantly for the understanding of high T<sub>c</sub> superconductors. Normal coordinate calculations have been employed to study the vibrational analysis of metal oxide EuBaCuFeO<sub>5</sub>. The phonon frequency spectrum is also attempted by means of theoretical model of lattice dynamics in addition to normal coordinate calculations. A shell model is developed in the present work which takes care of the effect of many body interactions between the ions and they are treated in a more general way without making them numerically equal. These calculations using infrared and Raman results have allowed us a detailed assignment of the lattice vibrations in the superconducting system EuBaCuFeO<sub>5</sub>.

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