

## Anharmonic Phonon Modes in Filled Skutterudites Probed by Inelastic X-ray Scattering

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Anharmonicity of the guest modes and their hybridization with acoustic modes are important in the physical properties of filled skutterudites. We have investigated the phonon spectra associated with the guest modes in filled skutterudites using inelastic x-ray scattering techniques of nuclear resonant inelastic scattering and high resolution inelastic x-ray scattering [1-6]. The former provides element-specific phonon spectra directly. The latter provides phonon dispersion relations even in small single crystal samples. We will discuss the anharmonicity of the guest modes and their hybridization with acoustic modes in Sm-filled skutterudites using nuclear resonant inelastic scattering and in  $\text{ROs}_4\text{Sb}_{12}$  using high resolution inelastic scattering.

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