

Abstract Submitted
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**Effects of Magnetic Ordering on Phonon Spectra in Iron-based
Superconductors: First Principle Calculation and Theoretical Analysis¹**

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SHAMOTO⁶, MNRC JAEA — Recently, inelastic x-ray scattering measurements
on single crystals of PrFeAsO_y ($y \sim 0.2$) have reported that phonons related with
Fe-Fe and Fe-As bondings are significantly more softened than those obtained by
the first principle calculations [1]. However, it is noted that any previous calcu-
lations do not include the magnetic degree of freedom. Therefore, we performed
the phonon structure calculations by taking into account the magnetic structure in
mother compounds. The magnetic calculations are in better agreement with the
observed softening. We show the results and clarify the reason.

[1] T. Fukuda et al, J. Phys. Soc. Jpn. 77, 103715 (2008).

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