

Elastic properties of $\text{PrOs}_4\text{Sb}_{12}$

M. Oikawa¹, Y. Nakanishi¹, T. Kumagai¹, M. Yoshizawa¹, H. Sugawara², Y. Aoki², H. Sato²

1 - Department of Materials Science and Engineering, Iwate University,
Morioka, Iwate, 020-8551, Japan

2 - Department of Physics, Graduate School of Science, Tokyo Metropolitan University,
Minami-Ohsawa, Hachioji, Tokyo 192-0397, Japan

We have measured the elastic constant of the filled skutterudite $\text{PrOs}_4\text{Sb}_{12}$ by means of ultrasonic measurement. $\text{PrOs}_4\text{Sb}_{12}$ is the first example of a Pr-based compounds heavy fermion superconductor ($T_c=1.85\text{K}$) [1]. Figure 1 shows the temperature dependence of elastic constants C_{11} , $(C_{11}-C_{12})/2$, C_{44} and bulk modulus C_B of $\text{PrOs}_4\text{Sb}_{12}$. Remarkable softening has appeared in the low temperature in all the modes of the elastic constant measured this time. Based on the result, fitting of an elastic constants $(C_{11}-C_{12})/2$ and C_{44} were performed by the Bauer model [1] and the Kohgi model [2].

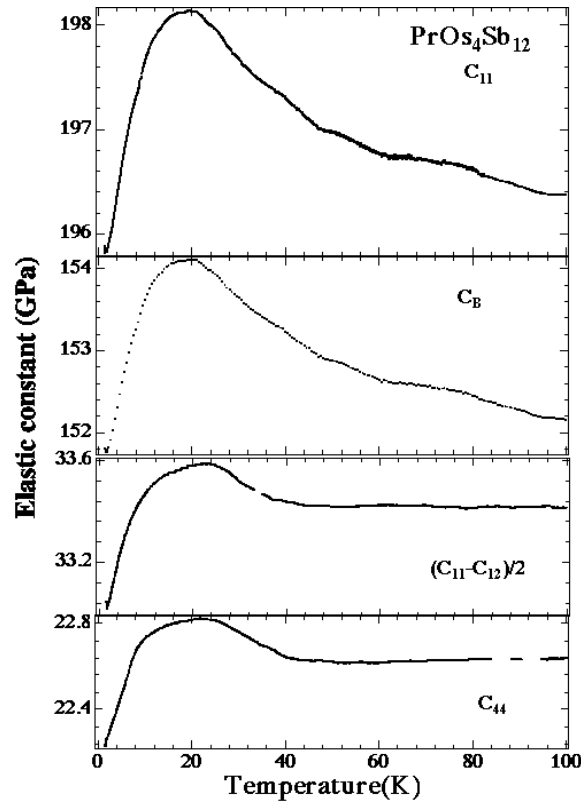


Figure 1: Temperature dependence of elastic constants C_{11} , $(C_{11}-C_{12})/2$, C_{44} and bulk modulus C_B of $\text{PrOs}_4\text{Sb}_{12}$.

[1] E . D . Bauer *et al.*, Phys. Rev. B **65** (2002) 100506(R). [2] M. Kohgi *et al.*, J. Phys. Soc. Jpn **72** (2003) 1002.