

Corresponding Author: ema_1006@yahoo.com

**SOUND VELOCITY IN Zn SUBSTITUTED
HoBa₂(Cu_{3-x}Zn_x)O_{7-δ} SUPERCONDUCTOR**

Aima Ramli and R. Abd-Shukor
School of Applied Physics, Faculty of Science and Technology
Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor

ABSTRACT

Ultrasonic longitudinal and shear velocities were measured in superconducting HoBa₂(Cu_{3-x}Zn_x)O_{7-δ} (x = 0, 0.01, 0.05) at 5-10 MHz between 80 K and 300 K. The characteristic Debye temperature was determined and the electron-phonon coupling constant was calculated using the BCS theory in the weak coupling limit and the van Hove scenario. The variation in the elastic behaviors upon Zn doping is attributed to the effect of changes in the spin correlation at the CuO₂ planes due to Zn doping.

<http://journal.masshp.net/wp-content/uploads/Journal/2007/Jilid%201/Aima%20Ramli%206-12.pdf>

REFERENCES

- [1] H. Alloul, J. Bobroff, P. Mendels (1997). Phys. Rev. Lett. 78: 2494-2499.
- [2] K. Yahya, N.A. Hamid, R.Abd-Shukor (2004). Ceramics International, 30(7): 1597-1601.
- [3] R. Abd-Shukor (2002). Superconductor Science and Technology 15(3): 435-438.
- [4] J. M. Getino, H. Rubio and M. de Llano (1992). Solid State Communication 83(11) : 891-893.
- [5] L.G. Mamsurova, K.S. Pigalskiy, V.P. Sakun, A.I. Shushin, L.G. Scherbakova, (1990). Physica C 167 11-21.