

Structural instability in $\text{CePd}_2\text{Al}_{(2-x)}\text{Ga}_2$ compounds

P. Doležal,¹ M. Klicpera,¹ J. Prchal,¹ and P. Javorský¹

¹*Charles University in Prague, Faculty of Mathematics and Physics,
(DCMP), Ke Karlovu 5, 121 16 Prague 2, Czech Republic*

RT_2X_2 compounds (R: rare earth element, T: d-element and X: p-element), crystallizing in tetragonal structure, revealed such physical properties as pressure-induced superconductivity, valence fluctuating phenomena or strong electron-phonon (e-p) interaction. The e-p interaction resulting in additional peak in energy spectra of CePd_2Al_2 attracts exceptional attention [1]. Most of RT_2X_2 compounds have stable structure, nevertheless, e.g. CePd_2Al_2 or CePd_2Ga_2 exhibit structural transition from tetragonal structure to lower symmetrical one [1, 2]. Moreover, the stability of tetragonal structure seems to be influenced by presence of strong e-p interaction in these compounds [1].

The presented study is focused on investigation of structural transition in $\text{CePd}_2\text{Al}_{(2-x)}\text{Ga}_2$ series by means of low temperature X-ray diffraction and high-pressure electrical resistivity and specific heat. Based on our recent results it seems to be probable that the pressure suppresses the e-p interaction. We will include these results in our presentation.

References:

- [1] L.C. Chapon, E.A. Goremychkin, et al., *Physica B* 378-380, 819 (2006)
- [2] J. Kitagawa, M. Ishikawa, *Journal of the Physical Society of Japan*, 2380-2383, 68 (1999)