

FERRIMAGNETIC Pb_2TiMn – A NEW INTERESTING INTERMETALLIC COMPOUND

*Czerniewski J.*¹, Goraus J.²

¹University of Silesia, Katowice, Poland

²University of Silesia, Katowice, Poland

jacekczerniewski@poczta.fm

jerzy.goraus@us.edu.pl

We have synthesized Pb_2TiMn using arc-melting technique. We determined crystal structure using X-ray diffraction, we found that it crystallizes in Fm-3m crystal structure with lattice parameter $a = 4.9478 \text{ \AA}$. Magnetic measurements show that it exhibits magnetic transition at $T = 225 \text{ K}$ and some metamagnetic features at 50 K . At 2 K the magnetization is typical for superconductor, which can be caused by residual Pb expulsions. The magnetization of the sample is weak, and significant atomic disorder can be deduced from thermodynamical properties.

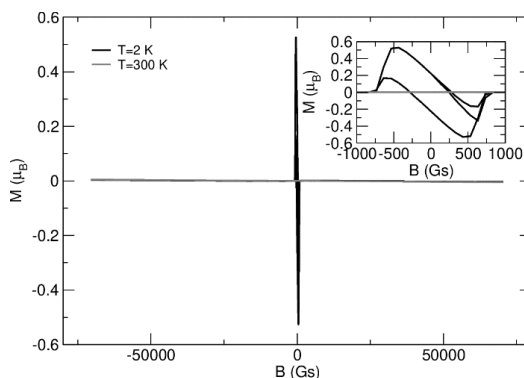


Fig. 1. Variation of the total magnetic moment as a function of magnetic induction for Pb_2TiMn alloy

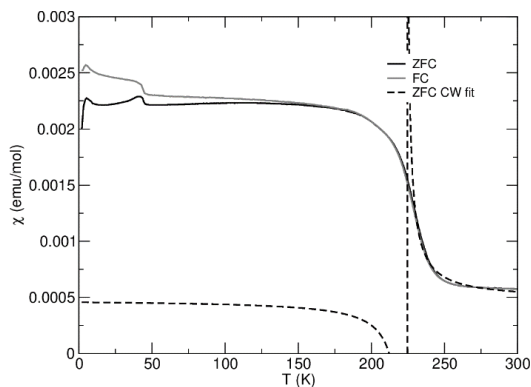


Fig. 2. The dependence of (molar) susceptibility (χ) on temperature (T)