

## W0020

**Single Crystal Structure Characterization of Iron Ludwigite from 294 to 15K.** M. Mir, Y.P. Mascarenhas. USP,IF-SC, 13560-970, São Carlos, SP, Brasil J.C. Fernandes, R.B. Guimarães, UFF-IF, 24210-340 Niterói, RJ, Brasil, Jan Janczak, ILTSR- PAS, P.O.Box 1410, 50-950 Wrocław, Poland.

The structure of the homometalic iron Ludwigite  $(\text{Fe}^{2+})_2(\text{Fe}^{3+})\text{O}_2\text{BO}_3$  is orthorhombic formed by zigzag walls of edge sharing octahedral  $\text{FeO}_6$ , connected by  $\text{BO}_3$  triangular group. It forms subunits arranged as three leg ladders of Fe cations in intermediate valence state, with one electron delocalized among the three  $\text{Fe}^{3+}$  site forming the ladder rungs. The low dimensionality and the presence of different sub lattices for Fe cations with different valences, confer to Ludwigite quite unusual properties. It was reported the appearance of a superstructure from 283 to 144K (M.Mir,PRL,87,14,2001). Anomalies in the transport properties also occur close to 283K showing that the structural transition is related to a charge ordering phenomenon in a low dimensional structure. This ordering produces a comensurated transversal charge density wave in the system. Other results indicate that complete charge ordering is not reached at 144K (R.B.Guimarães,PRB,60,9,1999). To better understand this system, structural data to 15 K were taken. X-Ray single crystal diffraction data did not show changes in crystalline structure between 15 K and 144 K, but only contraction of cell volume.

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