

# Magnetic and transport properties of some mixed-valent niobium phosphates

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## Description

After the discovery of tungsten phosphate bronzes (for a review see refs 1 and 2), a great deal of work was devoted to the electron-transport properties of these materials owing to their low dimensionality. Very interesting properties, such as resistivity anomalies related to a charge density wave (CDW), have been observed, that were interpreted on the basis of band electronic structure calculations. In these structures the conducting properties are closely related to the geometry of the chains of  $WO_6$  octahedra that form the ReO<sub>3</sub> type layers. Niobium, owing to its ability to exhibit the mixed valence Nb<sup>3+</sup>-Nb<sup>4+</sup> and to form niobium phosphates built up from octahedral chains, is well suited to exhibit similar properties. Recently new structural families of niobium phosphate bronzes were isolated. In the system K-Nb-PO, three series of phosphates were synthesized: KNb<sub>3</sub>-P<sub>3</sub>O<sub>15</sub> related to the tetragonal bronze (TTB), K<sub>3</sub> ...