

PHASE TRANSITIONS AND TRANSPORT PROPERTIES OF COMPLEX COPPER CHALCOGENIDES

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We have studied the properties of a class of complex copper chalcogenides A-Cu-X (where A = alkali metal or alkaline earth metal and X = S, Se, Te), synthesized recently. In this contribution we have focused on the phase transitions and transport characteristics of this family of compounds. Very interesting and noticeable features such as: phase transitions connected with CDW formation in $K_3Cu_8S_6$, $Rb_3Cu_8S_6$, and $K_3Cu_8Se_6$, the unusual linear in T behaviour of metallic resistivity down to $T \ll \Theta_D$ in $K_3Cu_8Te_6$, the metal-insulator transition with a metallic phase at low temperatures in $BaCuS_{3-x}$ and KCu_3Se_2 have been observed. Striking correlation between dimensionality of crystal lattice and temperature dependence of resistivity found for several chalcogenides is discussed.

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