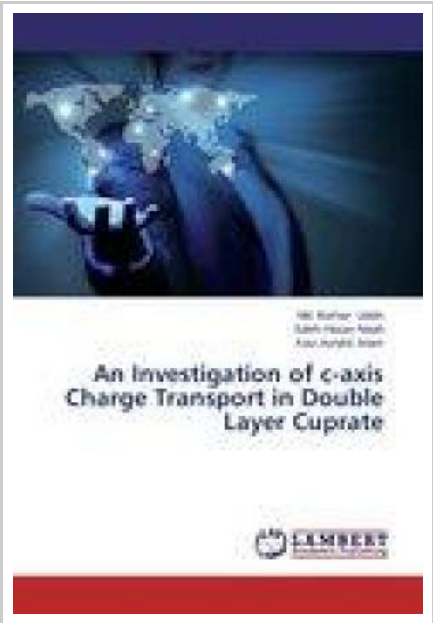

An Investigation of c-axis Charge Transport in Double Layer Cuprate

By Md. Borhan Uddin

LAP Lambert Academic Publishing Jan 2014, 2014. Taschenbuch. Book Condition: Neu. 220x150x5 mm. This item is printed on demand - Print on Demand Neuware - In this book we have studied the out-of-plane, c-axis resistivity, c(T), of Ca doped Y(Ca)Ba2Cu3O7- high-Tc superconductors (cuprates). Our aim was to model the c-axis resistivity by considering the full impact of the pseudogap (PG) in the electronic density of states (EDOS) in cuprates and to understand the role of the k (wave vector) on hopping integral along the c-direction. We have used the formalism developed by T. Xiang et al. (Phys. Rev. B 73, 134510 (2006)) to fit the experimental resistivity data for high quality single crystals of Y(Ca)Ba2Cu3O7- over a wide range of hole content in the CuO2 plane, p. We have found systematic behavior of maximum pseudogap energy scale, , with doping. It is also found that the coefficient, c, determining the extent of linearity of c(T) is also strongly p-dependent. The analysis also reveals that the formalism developed by T. Xiang et al., fails to produce reliable estimates of and c for the overdoped compounds. The extrapolated values of (p) tends to vanish at p ~ 0.2. We have discussed the...

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