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Study of the Pseudogap in $Y_{1-x}Ca_xBa_2Cu_3O_{7-d}$ Superconductor

EDWIN HERRERA, HECTOR CASTRO — The generic phase diagram of doping vs. temperature for High Temperature Superconductors (HTSC) presents in the underdoped region a zone called Pseudogap (PG). The analysis of this region is very interesting since it is believed that it is deeply related, and therefore can help us understanding better the superconductive (SC) transition. Different theories exist up to now which try to explain the origin of the PG and its influence on the SC transition. Some of them see the PG as a precursor of the superconducting gap, while others see it as a competing phenomenon which retards the SC transition. In the present work we analyze resistivity measurements in bulk samples of the high temperature superconductor $Y_{1-x}Ca_xBa_2Cu_3O_{7-d}$, for different concentrations of calcium (x) and oxygen (d), and its influence on the PG zone. We discuss our results on the light of some of these theories.

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