SUPERCONDUCTING CRITICAL TEMPERATURE OF LAYERED MERCUROCUPRATE FAMILY

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9.7 cm

We study the physics of the mercurocuprate family from the structural point of view. We present a phenomenological approach determining the critical temperatures for homologous series $HgBa_2Ca_{n-1}Cu_nO_{2n+2+\delta}$ depending of number of layers n. The model is based on the Lawrence-Doniach theory of layered superconductors modified for the case of inequivalent layers. The redistribution of charge was taken into account. This lead to observable nonmonotonic "bell"-shaped dependence of $T_c(n)$ and provides a quantitative explanation of the experiments.

13.4 cm

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