PREPARATION AND CHARACTERIZATION OF SUPERCONDUCING MATERIAL IN THE SYSTEM Ho-BaO-CuO

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A study of the phase relation in the system Ho-BaO-CuO has been determined by means of X-ray diffraction and resistivity measurements. There exist two compounds: $HoBa_2Cu_3O_{7-x}$ and Ho_2BaCuO_5, the superconducting and an insulating phase respectively. The compound $HoBa_2Cu_3O_{7-x}$ belongs to the space group Pmmm with lattice constants a = 3.839 (2), b=3.881(1) and c=11.66(2)A. Ho_2BaCuO_5 belongs to orthorohmbic structure with the space group Pbnm or $Pbn2_1$. The relation between the composition and superconductivity is also discussed.