Incommensurate structure and x-ray powder diffraction data for $Bi_2Sr_2CaCu_2O_{8+x}$ (Bi-2212phase) and $Bi_2Sr_2Ca_2Cu_3O_{10+x}$ (Bi-2223 phase). 남궁 찬 (육군제3사관학교 대학부) 이상윤(경북대학교 물리학과). The x-ray powder pattern of single phase $Bi_2Sr_2CaCu_2O_{8+x}$, has been identified and fully indexed using a pseudotetragonal subcell with $\underline{a}$ = 5.408, $\underline{c}$ = 30.83 A and an incommensurate supercell with reciprocal lattice vector, q*, given by q* = 0.211b* - c*. The x-ray powder pattern of the Pb-free 110K superconductor phase "$Bi_2Sr_2Ca_2Cu_3O_{10+x}$" has many lines which belong to an incommensurate supercell. Using electron difraction photographs as a indexing guide, an indexing scheme for the powder pattern has been obtained. The unit cell has a geometrically orthorhombic subcell $\underline{a}$ = 5.411, $\underline{b}$ = 5.420, $\underline{c}$ = 37.29(2) A. Supercell reflections have indices that are derived from the subcell k, l indices by addition of $\pm q^*$, where $\pm q^*$ = 0.211b* - 0.78c*. The incommensurate component in the $\underline{b}$ direction, δ, is the same for both phases but on going from 2212 to 2223 phase, the superlattice component in the $\underline{c}$ direction changes from commensurate (ξ = 1) to incommensurate (ξ = 0.78).

Slide projector 필요 ( ) 구두발표 희망 ( ) 발표논문대표자: 남 궁 찬
Overhead projector 필요 (✓) Poster 발표 희망 ( ) 발 표 자: 남 궁 찬
공 동 저 자: 이 상 윤
발표희망분과 및 분야: 고체물리
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