

Lattice Parameters Measurements of $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ Superconductors Prepared under Various Forming Pressures using X-Ray Diffraction Technique

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The effect of pressure on the critical temperature T_c is studied for $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ compounds prepared under various forming pressures. A systematic decrease in lattice parameters is observed with forming pressure. Resistivity measurements show an increase of the onset temperature T_{co} with forming pressure. A value of $dT_{co}/dP \approx (0.070 \pm 0.010) \times 10^{-8}$ K/Pa is determined. A new mechanism based on the variation of the interlayer tunneling integral t_{\perp} is used to analyse the experiment results.

Keywords: superconductors, lattice, parameters