Hall Effect in CLBLCO Superconductors

BYRON WATKINS, Northwestern University, Evanston, IL, KHANAN CHASHKA, ARKADY KNIZHNIK, Technion, Haifa, Israel, YAKOV ECKSTEIN, Technion; Northwestern University — Electrical charge transport carrier concentration trends were observed with Hall effect experiments in \((\text{Ca}_x\text{La}_{1-x})(\text{Ba}_{1.75-x}\text{La}_{0.25+x})\text{Cu}_2\text{O}_y\). All values of \(x\) yield similar trends in \(R_H\) vs. \(T\), but increasing doping \((y)\) reduces \(R_H\) as expected. All samples that exhibit superconductivity (SC) also exhibit a maximum Hall coefficient at approximately \(2T_C\). Contrarily, in the extreme doping cases (non SC samples) no maxima are observed and the underdoped cases exhibit insulator-like increased \(R_H\) at lower \(T\). A full description of experiment and analysis will be presented.

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Date submitted: 19 Oct 2004