

EVIDENCE FOR HOLE-LIKE CONDUCTION IN THE NORMAL STATE OF
THE (Bi,Pb)-Sr-Ca-CuO HIGH TEMPERATURE SUPERCONDUCTOR

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(Bi_{0.7}Pb_{0.3})Sr₁Ca₁Cu_{1.5}O_y high temperature superconducting compound has been prepared by solid state sintering of high purity oxides/carbonates. The material, characterized using electrical resistivity and magnetic susceptibility measurements, shows a superconducting transition temperature of 110 K. Electrode potential vs capacitance measurements were taken at room temperature in 1M KCl+0.01M HCl aqueous electrolyte with a sintered pellet samples as one electrode, a Pt. mesh as the counterelectrode, and a saturated calomel electrode (SCE) as the reference electrode.

The negative slope of the Mott-Schottky plots, $1/C^2$ vs potential at different frequencies, agrees with a hole-like conduction process in the normal state of the material. Similar conductivity behaviour has been suggested by other workers for the normal state of several high T_c cuprates based on thermoelectric power, Hall effect and optical reflectivity measurements.

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