

**THE EFFECT OF FERRUM DOPING ON
SUPERCONDUCTING PROPERTIES OF THE POROUS**



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ABSTRACT

THE EFFECT OF FERRUM DOPING ON SUPERCONDUCTING PROPERTIES OF THE POROUS $\text{Bi}_{1.6}\text{Pb}_{0.4}\text{Sr}_2\text{Ca}_2\text{Cu}_{2.7}\text{Fe}_{0.3}\text{O}_8$ SYSTEM

In this study, the effect of ferrum doping in $\text{Bi}_{1.6}\text{Pb}_{0.4}\text{Sr}_2\text{Ca}_2\text{Cu}_{2.7}\text{Fe}_{0.3}\text{O}_8$ does not show any superconducting behaviour. The sample was prepared by solid state reaction method. The sample was characterised by using four-point probe and X-ray powder diffraction (XRD). From the graph of normalised resistance versus temperature, it shows that the sample exhibit a semiconducting behaviour. Thus, the critical temperature, T_C of sample could not be determined. The critical current density, J_C of the sample cannot be determined as well. The XRD pattern shows the combination of 2212 and 2223 phases. It was observed that the structural change by Fe doping is responsible for the decreased in critical temperature.

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