

"The PTCR effect in BaNb₂O₆ ceramics"

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We have investigated the semiconducting properties of BaNb₂O₆ ceramics, with the samples prepared via the solid-state reaction route. The donor-doped samples sintered in a reducing atmosphere were found to be semiconducting. The temperature dependence of the electrical resistivity of the samples was examined, and the grain-boundary properties were investigated in order to optimize the anomaly in the electrical resistivity. The PTCR effect in the sintered samples was developed by inducing the acceptor states on the grain boundaries. Dielectric measurements, impedance measurements, microstructural analysis and electrical measurements were used to characterize the materials.