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Characterization of Spray Deposited Bismuth Oxide Thin Films from Non-Aqueous Medium

V.V. KILLEDAR, C.H. BHOSALE
Thin Film Physics Laboratory, Department of Physics
Shivaji University, Kolhapur-416004, INDIA
C.D. LOKHANDE
Hahn Meitner Institute, Berlin - GERMANY

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Authors

Abstract: Bismuth oxide thin films have been prepared on amorphous glass substrates from non-aqueous medium using spray pyrolysis method. Characterization of the films was carried out with XRD, optical absorption, dark resistivity and thermoelectric power (TEP) measurements. These studies reveal that films as deposited are polycrystalline; having an optical band gap of 2.6 eV; electrical resistivity is of the order of 10^6 ohm-cm; and electron carrier concentration and mobility are of the order of 3.8 \times $10^{19}cm^3$ and 1.5 \times $10^{-4}cm^2$ $V^{-1}s^{-1}$, respectively.

Key Words: bismuth oxide, thin films, spray pyrolysis, electrical properties, optical properties.

phys@tubitak.gov.tr

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