

Optoelectronic Properties of $\text{La}_2\text{NiMnO}_6$ Thin Film for Photovoltaic Applications

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A FTO/ $\text{La}_2\text{NiMnO}_6$ (LNMO)/Au type Schottky device is fabricated by chemical solution deposition method to explore the charge transport mechanism in LNMO thin film for various light sensing semiconductor devices as well as solar cell. The fabricated LNMO thin film shows many attributes suitable for high photovoltaic performance. The charge carrier transport mechanism in the LNMO thin film is analyzed by applying the thermionic emission theory of metal–semiconductor junction. The prepared LNMO thin film shows good photosensitivity. A significant change in the series resistance, barrier potential height, effective mobility, conductivity, charge carrier density and carrier diffusion length has been observed under the white light illumination which is very crucial for photovoltaic application.