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Characterization of aluminium Schottky junction diode fabricated on nickel oxide thin film synthesized through sol-gel method

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Nickel oxide (NiO) thin films were deposited on glass substrates through the sol-gel spin coating technique. Structural, optical and electrical characteristics of the films were studied using X-ray diffraction (XRD), scanning electron microscopy (SEM), atomic force microscopy (AFM), Uv-vis spectrophotometry and linear four point probe resistivity measurement. The films were found to be polycrystalline, uniform, conducting and transparent. NiO film was also deposited on p-type silicon substrates and aluminium contacts of 0.6 mm diameter were deposited on the film to form an Al/NiO/p-Si structure. Indium-gallium was used as ohmic contact on the silicon and current-voltage characteristics of the Al/NiO schottky junction were investigated. The junction showed good rectification and the parameters of the junction were determined.

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