

# Sensing characteristics of NiO and NiO:Li thin films deposited by sol gel method onto glass substrate

I.Sta<sup>1,\*</sup>, M. Jlassi<sup>1</sup>, M. Kandyla<sup>3</sup>, M.Hajji<sup>1,2</sup>, P. Koralli<sup>3</sup>, M. Kompitsas<sup>3</sup>  
and H. Ezzaouia<sup>1</sup>

<sup>1</sup> *Laboratoire de Photovoltaïque, Centre de Recherche et des Technologies de l'Energie, Technopole de Borj-Cédria, BP 95, 2050 Hammam-Lif, Tunisie.*

<sup>2</sup> *Institut Supérieur d'Electronique et de Communication de Sfax, Université de Sfax, BP 868, 3018 Sfax, Tunisie.*

<sup>3</sup> *National Hellenic Research Foundation, Theoretical and Physical Chemistry Institute, 48, Vasileos, Konstantinou Ave., 11635 Athens, Greece.*

\* email of corresponding author: [imenstalpv@yahoo.fr](mailto:imenstalpv@yahoo.fr)

## Abstract

Undoped NiO and NiO doped lithium films fabricated by spin coating method were studied for hydrogen sensing applications. The sensor response was found to depend essentially on four parameters: chemical composition, structure, morphology and operating temperature. The crystallinity and morphology of the as-prepared films were analyzed using X-Ray Diffraction (XRD) and Atomic Force Microscopy (AFM). The sensing properties of NiO and NiO:Li toward H<sub>2</sub> were investigated at different operating temperatures and H<sub>2</sub> concentrations. Optimization of the preparation conditions show that NiO:Li 8% thin films exhibit the highest sensitivity.

**Keywords:** Nickel Oxide; lithium doping; semiconductor; sol gel method; hydrogen sensors.