

# Structural properties of Al-doped ZnO thin films deposited on silicon substrate by sol gel method

A. Lebbad<sup>1</sup>, L. Kerkache<sup>1</sup>, A. Y. Felouat<sup>2</sup>

<sup>1</sup> Laboratoire d'Etudes des Surfaces et Interfaces des Matériaux Solides (L.E.S.I.M.S.), Faculté des Sciences. Université Ferhat Abbas Sétif-1, Sétif (19000), ALGERIA.

<sup>2</sup> Laboratoire des systèmes photoniques et optique non linéaire, Institut d'Optique et Mécanique de Précision. Université Ferhat Abbas Sétif -1, Sétif (19000), ALGERIA.

[lebbad.ahlem@yahoo.com](mailto:lebbad.ahlem@yahoo.com)

## Abstract

We have deposited aluminum-doped zinc oxide (ZnO:Al) thin films via dip-coating technique onto silicon substrate (111). Then we have characterized them by X-ray diffraction, scanning electron microscopy (SEM), atomic force microscopy (AFM). It is found that all the thin films have a preferential c-axis orientation along the (0 0 2) plane. SEM and AFM have provided the information on morphology of these films where the size grain and average surface roughness (rms) depend on the number of layers. All the results will be discussed and correlated.

**Keywords:** ZnO and ZnO:Al thin films, dip-coating