## **Quantifying charge carrier concentration in ZnO thin films by Scanning Kelvin Probe Microscopy**

## C. Maragliano<sup>1</sup>, S. Lilliu<sup>2</sup>, M.S. Dahlem<sup>2</sup>, M. Chiesa<sup>1</sup>, T. Souier<sup>1</sup> and M. Stefancich<sup>1</sup>

<sup>1</sup>Institute Center for Energy (iEnergy), Masdar Institute of Science and Technology, Abu Dhabi, UAE

<sup>2</sup>Nano-Optics and Optoelectronics Research Laboratory, Masdar Institute of Science and Technology, Abu Dhabi, UAE

The Table below reports the average value as well as the standard deviation of the contact potential difference  $V_{CPD}$  measured on a set of thin film ZnO samples with different thicknesses. Each of them has been deposited under the same conditions (deposition rate 0.1 Å/sec, Ar pressure 0.8 mTorr).

Thickness (nm)	Average value and standard deviation of the $V_{CPD}$ (mV)
10	634±5
25	444±7
50	437±8
100	442±4
150	453±10
300	432±8

Table 1. Average value and standard deviation of the  $V_{CPD}$  measured on a set of thin film ZnO samples with different thickness (from 10 to 300 nm)