

# The Oxidation State Study of VxOy Thin Films by Raman Spectrum and XANES

Chen-Hung Yen (嚴振洪)<sup>1</sup>, Ching-Chuang Yin (殷靖筌)<sup>1</sup>, Ing-Jiunn Su (蘇英俊)<sup>1</sup>, and Hui-Huang Hsieh (謝輝煌)<sup>1\*</sup>

<sup>1</sup>Department of Electrical and Electronic Engineering, National Defense University, Taoyuan 335, Taiwan  
[hhhsieh@ndu.edu.tw](mailto:hhhsieh@ndu.edu.tw)

## Abstract

VxOy as a functional material, the oxidation state dominate the physical properties of such materials. We prepared one series the VxOy thin films with different oxygen condition in vacuum chamber by ion sputter. The Raman spectrum and X-ray absorption near edge structure have used to identify oxidation state of VxOy thin films. We have measured the sheet resistance of VxOy thin films also. The relationship between sheet resistance and oxidation state have discussed in our thesis. The results help us to control the oxidation state of such functional material in process.

**Keywords** – *Raman, XANES, VxOy*