

## Effect of the Substrate Temperature on the Copper Oxide Thin Films

박주연, 강용철

부경대학교 화학과

Copper oxide thin films were deposited on the p-type Si(100) by r.f. magnetron sputtering as a function of different substrate temperature. The deposited copper oxide thin films were investigated by atomic force microscopy (AFM), scanning electron microscopy (SEM), spectroscopic ellipsometry (SE), X-ray diffraction (XRD), and X-ray photoelectron spectroscopy (XPS). The SEM and SE data show that the thickness of the copper oxide films was about 170 nm. AFM images show that the surface roughness of copper oxide films was increased with increasing substrate temperature. As the substrate temperature increased, monoclinic CuO (111) peak appeared and the crystal size decreased while the monoclinic CuO (-111) peak was independent on the substrate temperature. The oxidation states of Cu 2p and O 1s resulted from XPS were not affected on the substrate temperature. The contact angle measurement was also studied and indicated that the surface of copper oxide thin films deposited high temperature has more hydrophobic surface than that of deposited at low temperature.