

The videos of the XRD scan and photocurrent spectrums of sample A and B can be found at following website:

θ -2 θ scan of sample A:

http://s1265.beta.photobucket.com/user/zqhero/media/sampleA2thetaomega_zps4d309da5.mp4.html

phi-scan of sample A

http://s1265.beta.photobucket.com/user/zqhero/media/sampleAphiscaan_zpsd363b667.mp4.html

θ -2 θ scan of sample B

http://s1265.beta.photobucket.com/user/zqhero/media/sampleB-2thetaomega_zps6ca68a81.mp4.html

phi-scan of sample B:

http://s1265.beta.photobucket.com/user/zqhero/media/sampleBphiscaan_zps46c0aea1.mp4.html

θ -2 θ scan of sample C:

http://s1265.beta.photobucket.com/user/zqhero/media/sampleC2thetaomega_zps542f8aca.mp4.html

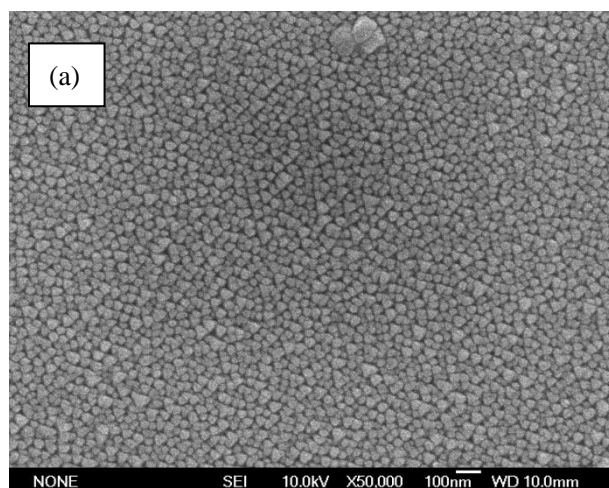
Photocurrent spectrum of sample A under 10V:

http://s1265.beta.photobucket.com/user/zqhero/media/photocurrentofsampleAunder10V223_zps56a96abd.mp4.html

Photocurrent spectrum of sample B under 3V:

http://s1265.beta.photobucket.com/user/zqhero/media/photocurrentofsampleBunder3V_zps65eafb1c.mp4.html

Fig.1 shows the SEM image of $Mg_{0.50}Zn_{0.50}O$ grown on various substrates. As can be seen, $Mg_{0.50}Zn_{0.50}O$ film grown on MgO substrate has a much flatter surface with regular morphology. $Mg_{0.50}Zn_{0.50}O$ film grown on sapphire substrate has worm-shape un-regular morphology. Due to the phase separation, surface of $Mg_{0.50}Zn_{0.50}O$ film grown on quartz substrate consists of two kinds of morphologies. These are consistent with the results of AFM and the XRD measurements.



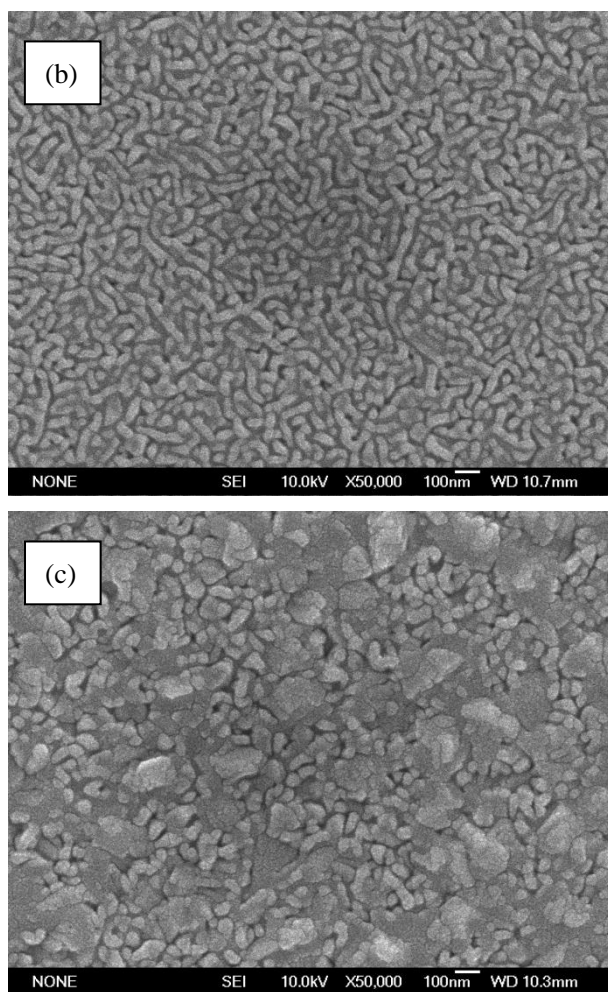


Fig.1 SEM images of $Mg_{0.50}Zn_{0.50}O$ grown on various substrates, (a) on MgO, (b) on sapphire and (c) on quartz substrates.