

Synchrotron Radiation X-ray Absorption Spectroscopy Investigation on ZnMnTe, MgZnO and AlZnO Materials

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We have recently employed the National Synchrotron Radiation Research Center (NSRRC) beamline 11A of Soft X-ray Absorption Spectroscopy for Mn, Mg and O K-edge X-ray absorption measurements on a series of ZnMnTe, MgZnO and AlZnO materials. Quite a lot of significant data and fruitful results have been obtained. High energy and high intensity synchrotron radiation technology is approved to be a powerful tool for materials fundamental research on these wide band gap semiconductors, and it can play an important rule to promote research in this filed.

Figures 1~4 show the tender X-ray absorption measurements on Mn, Mg and O K-edge, respectively. These experiments were operated in X-ray fluorescence yield mode at beamline 11A of the National Synchrotron Radiation Research Center (NSRRC) in Hsinchu, Taiwan.

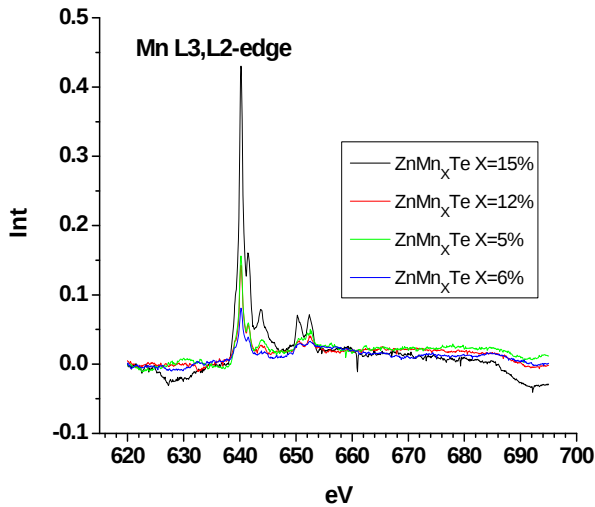


Fig. 1: Mn L₂-edge of Zn_{1-x}Mn_xTe with x=0.05, 0.06, 0.12, and 0.15, respectively.

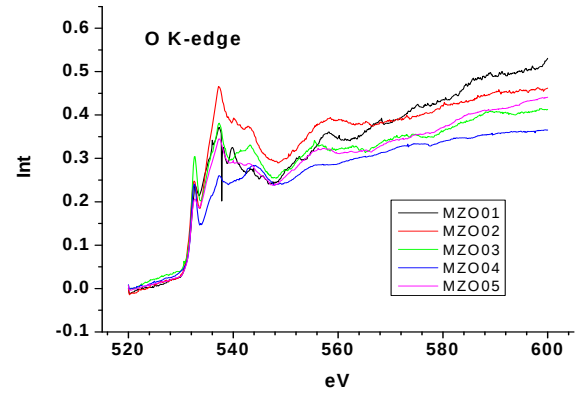


Fig. 2: O K-edge of Mg_xZn_{1-x}O with x= 0.00, 0.01, 0.1, 0.10 and 0.14, respectively.

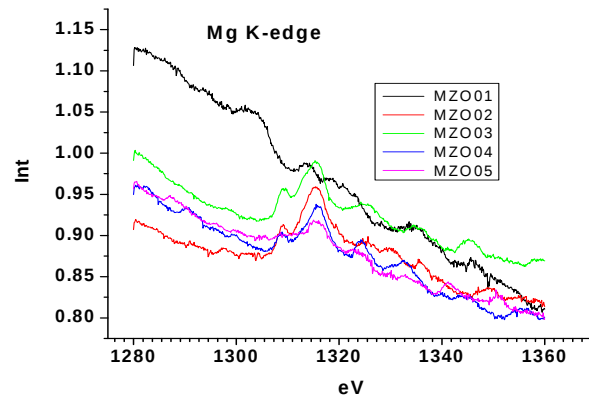


Fig. 3: O K-edge of Mg_xZn_{1-x}O with x= 0.00, 0.01, 0.10 and 0.14, respectively.

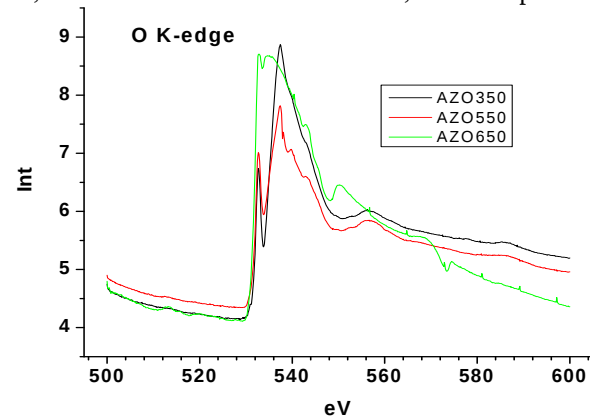


Fig. 4: O K-edge of AZO350, AZO550, AZO650.