

Fig. 4-11-3 SEM image of the 1wt% grown AZO film at $T_s = 250^\circ\text{C}$.

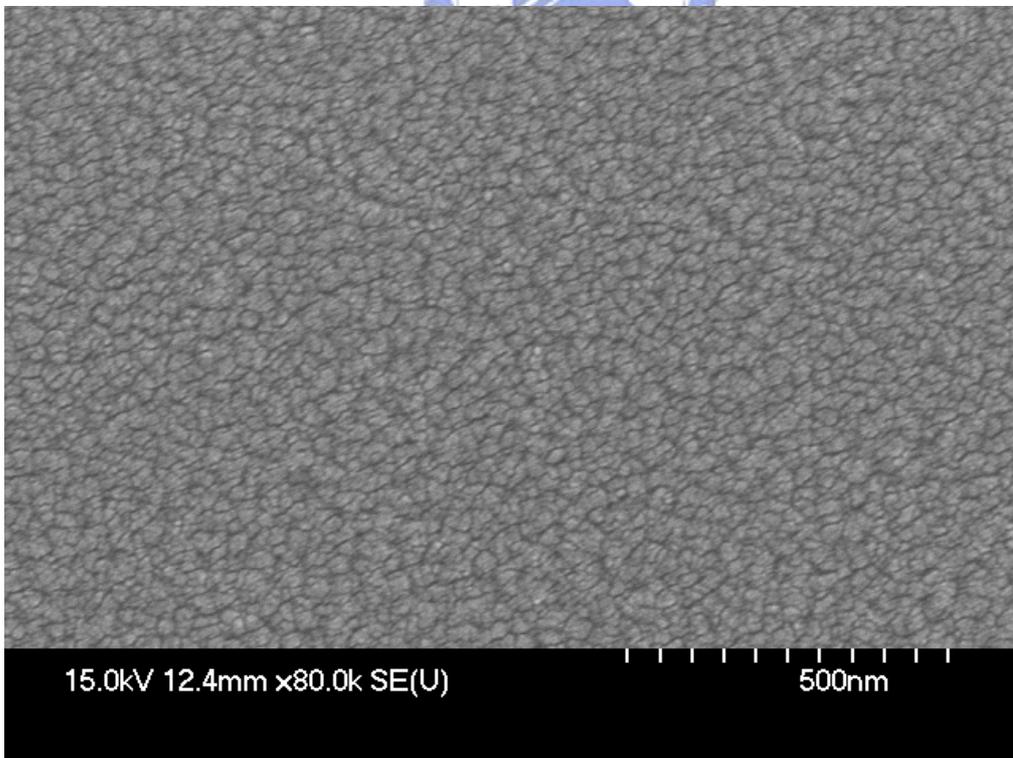


Fig. 4-12-1 SEM image of the 2wt% grown AZO film at $T_s = \text{R.T.}$.

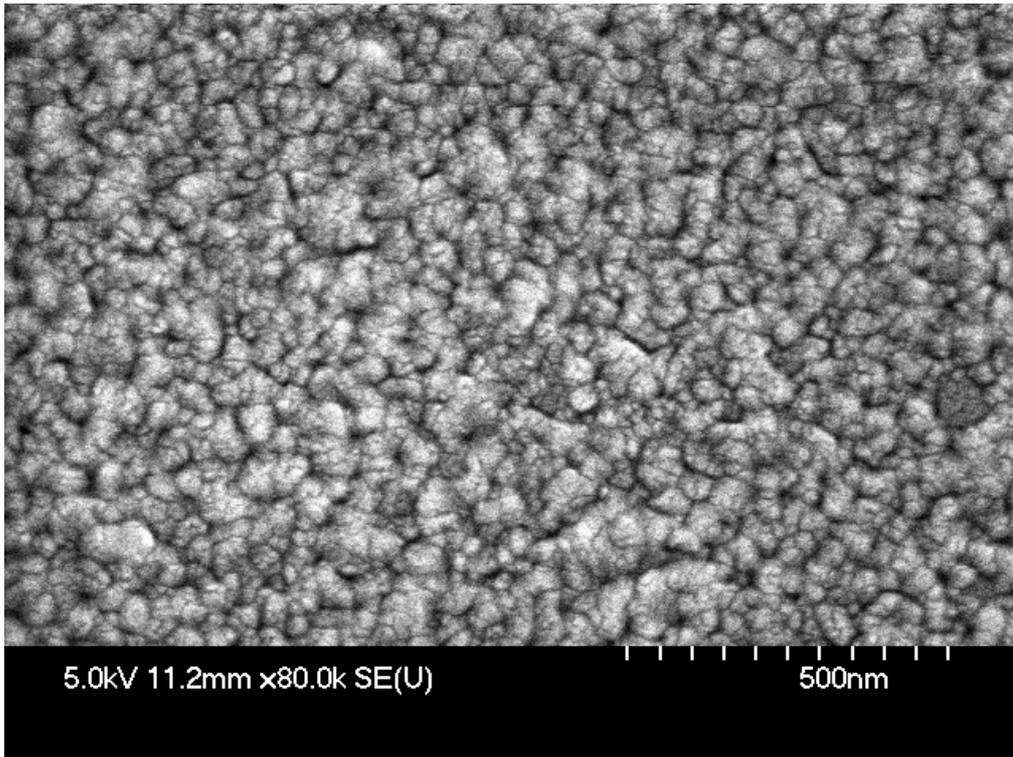


Fig. 4-12-2 SEM image of the 2wt% grown AZO film at $T_s = 150^\circ\text{C}$.

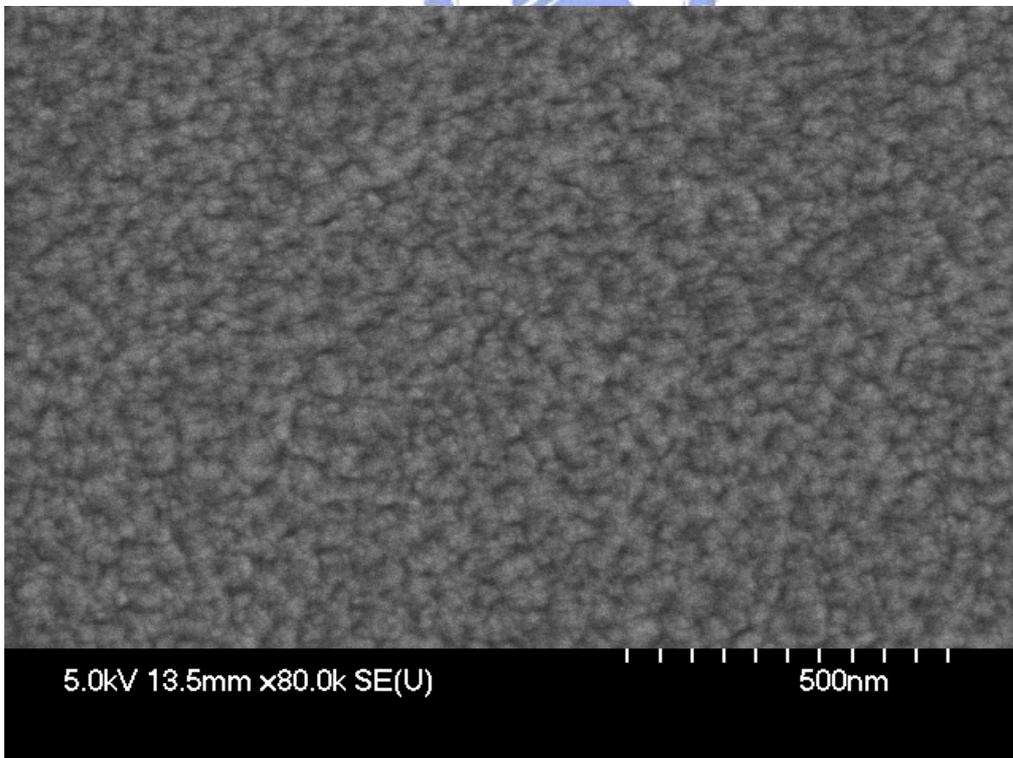


Fig. 4-12-3 SEM image of the 2wt% grown AZO film at $T_s = 250^\circ\text{C}$.

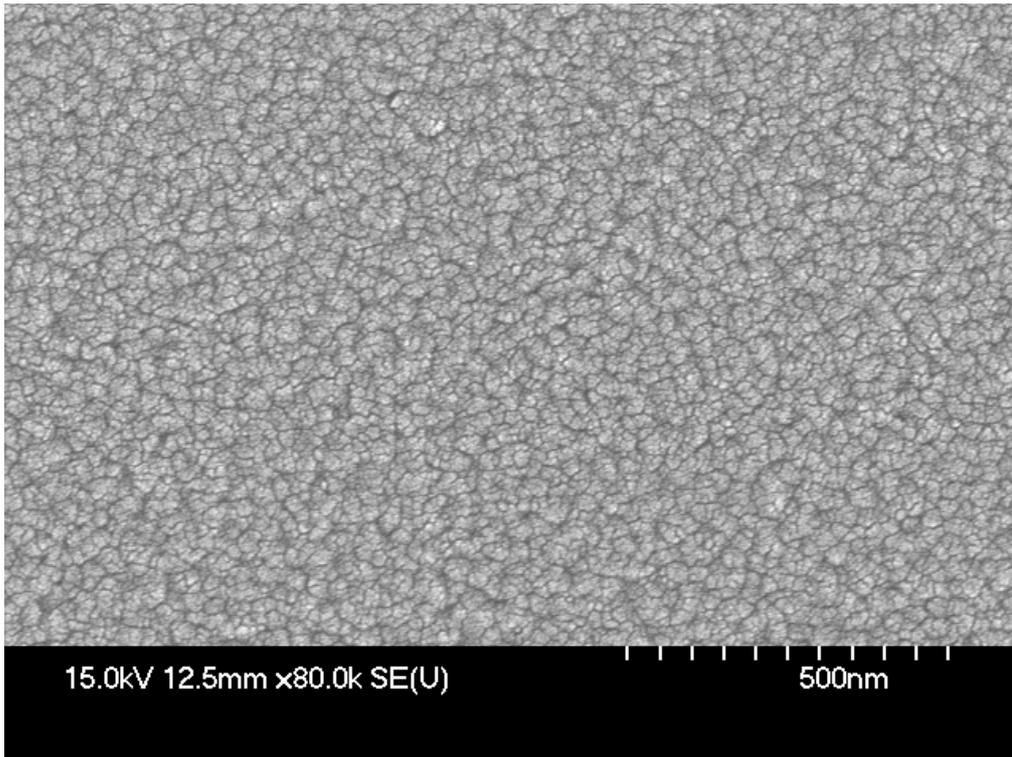


Fig. 4-13-1 SEM image of the 4wt% grown AZO film at $T_s = R.T.$.

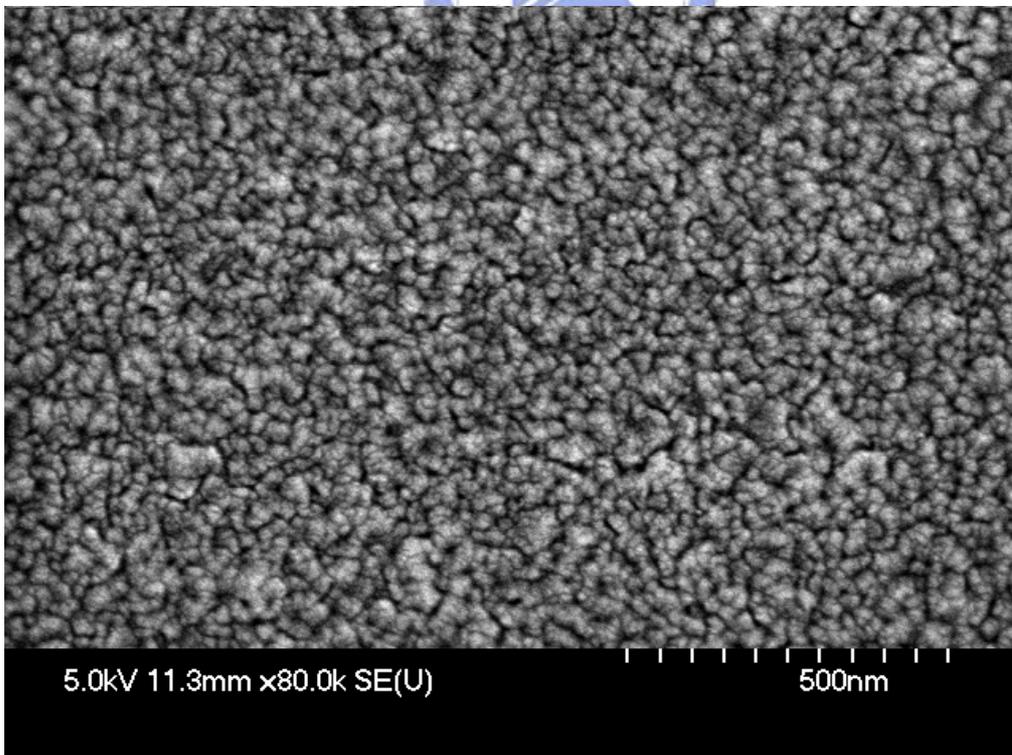


Fig. 4-13-2 SEM image of the 4wt% grown AZO film at $T_s = 150^{\circ}C$.

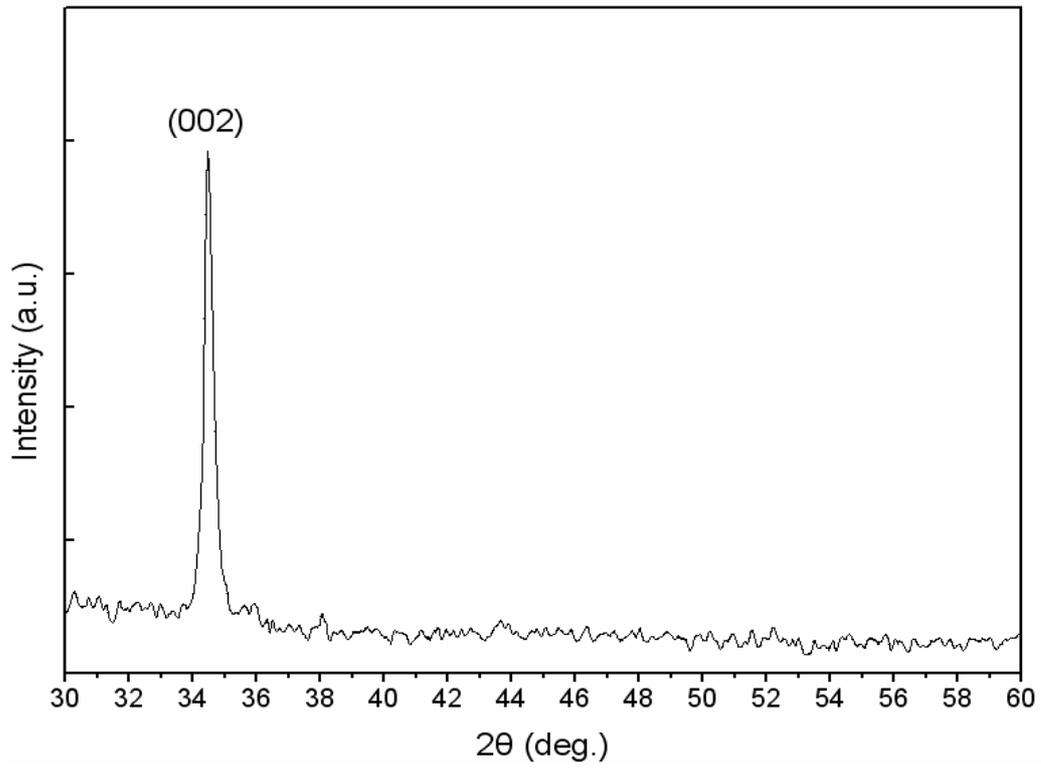


Fig. 4-14-1 The XRD pattern of the 2wt% grown AZO film at Ts = R.T..

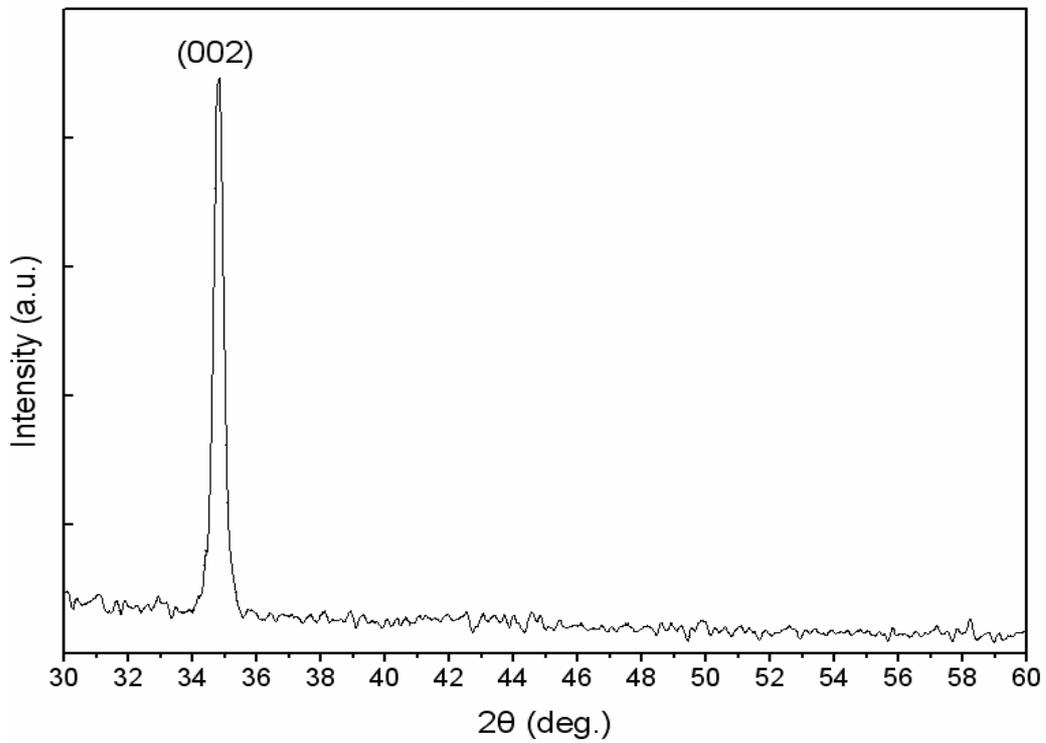


Fig. 4-14-2 The XRD pattern of the 2wt% grown AZO film at Ts = 150°C .

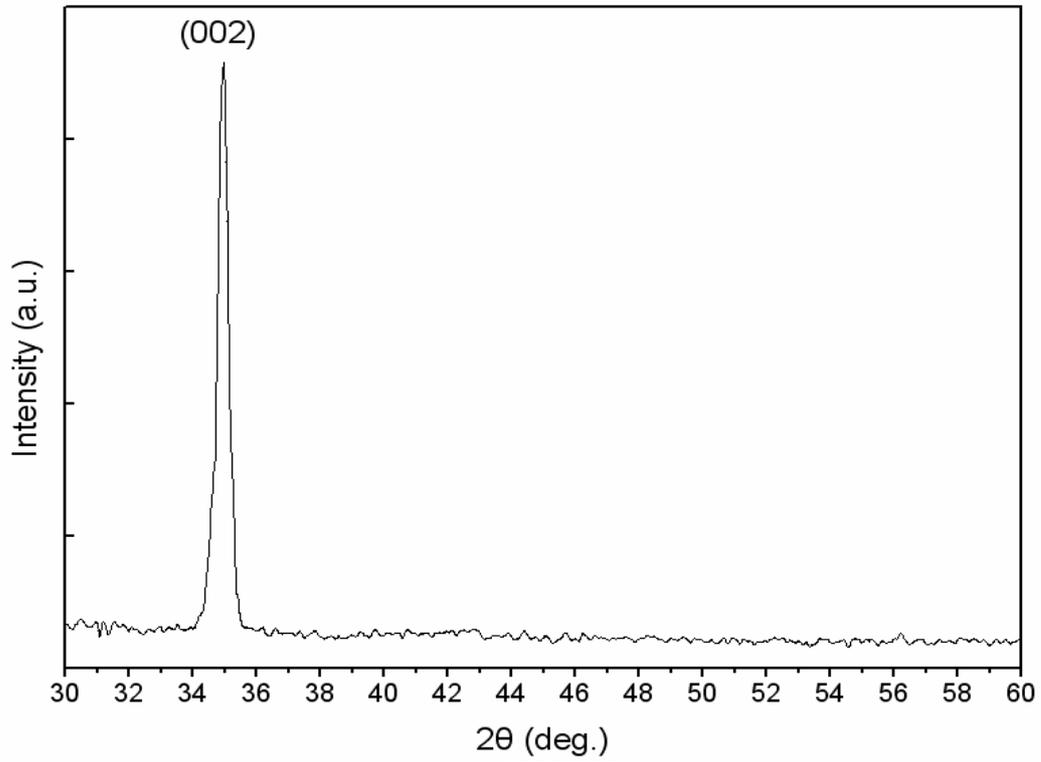


Fig. 4-14-3 The XRD pattern of the 2wt% grown AZO film at $T_s = 250^\circ\text{C}$.

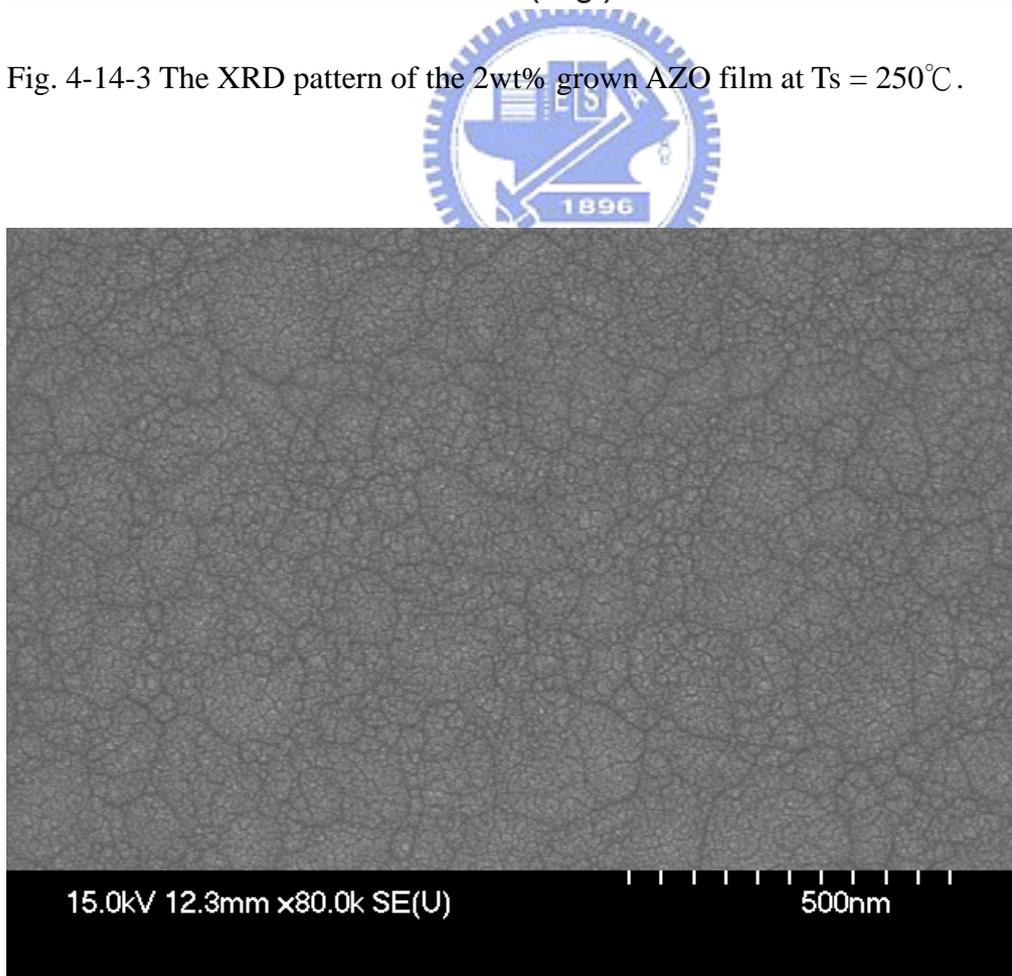


Fig. 4-15-1 SEM image of the 4000Å undoped ZnO film. (Prf = 80W, Pw = 2.5mTorr)

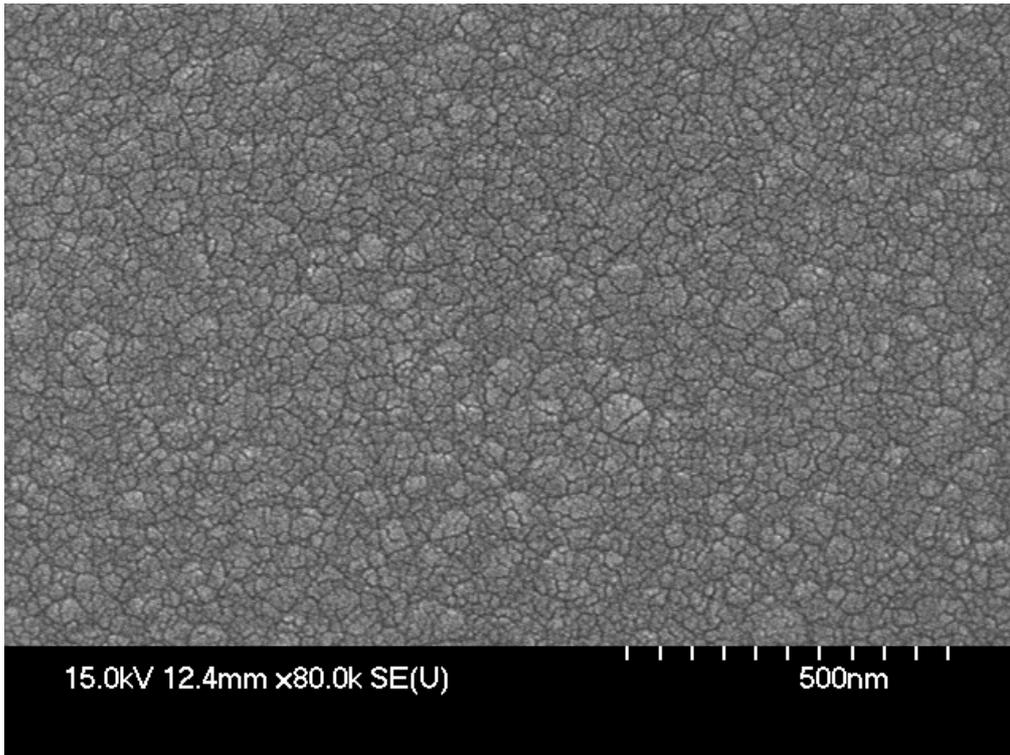


Fig. 4-15-2 SEM image of the 4000Å 0.5wt% grown ZnO film. (Prf = 80W, Pw = 2.5mTorr)

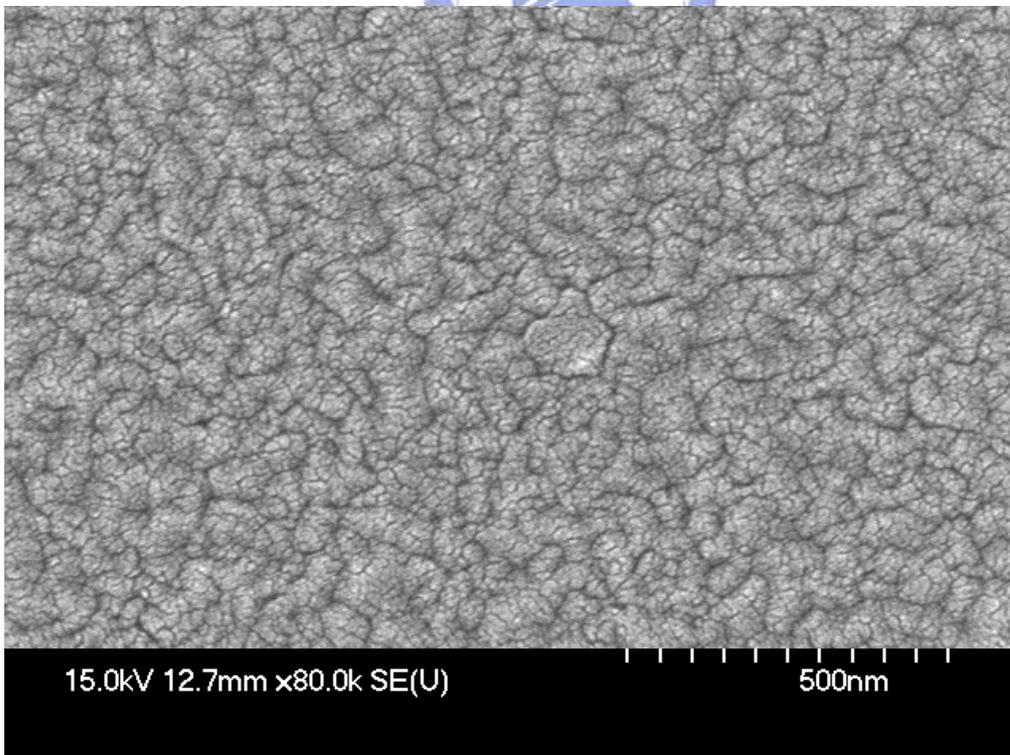


Fig. 4-15-3 SEM image of the 4000Å 1wt% grown ZnO film. (Prf = 80W, Pw = 2.5mTorr)

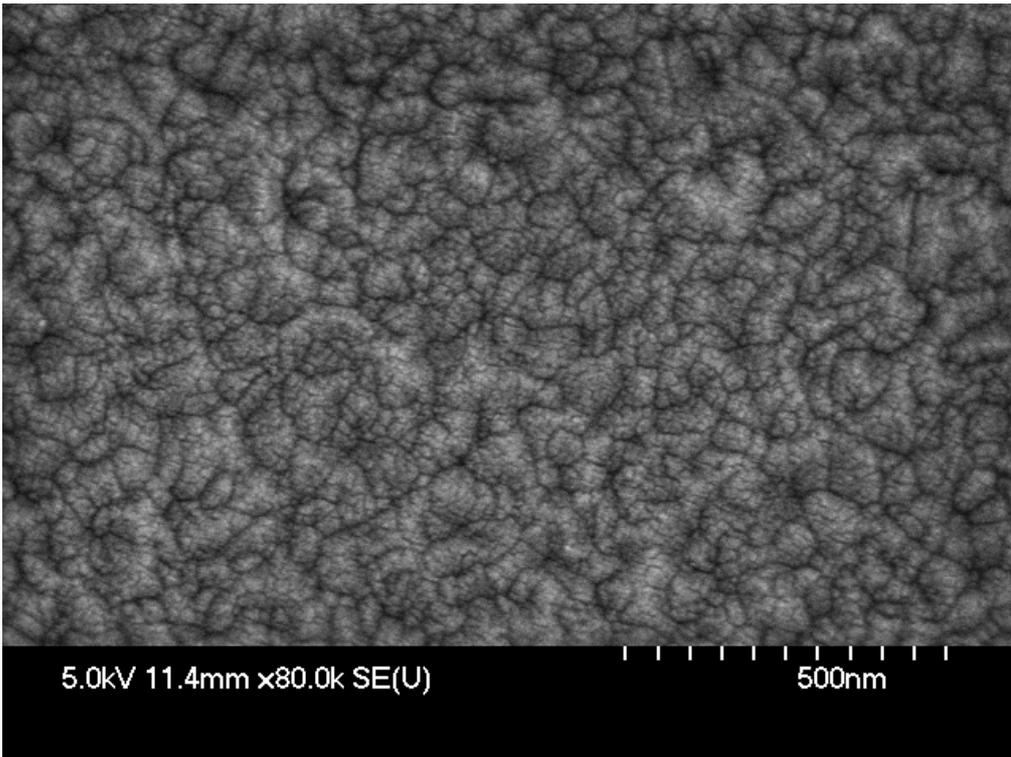


Fig. 4-15-4 SEM image of the 4000Å 2wt% grown ZnO film. (Prf = 80W, Pw = 2.5mTorr)

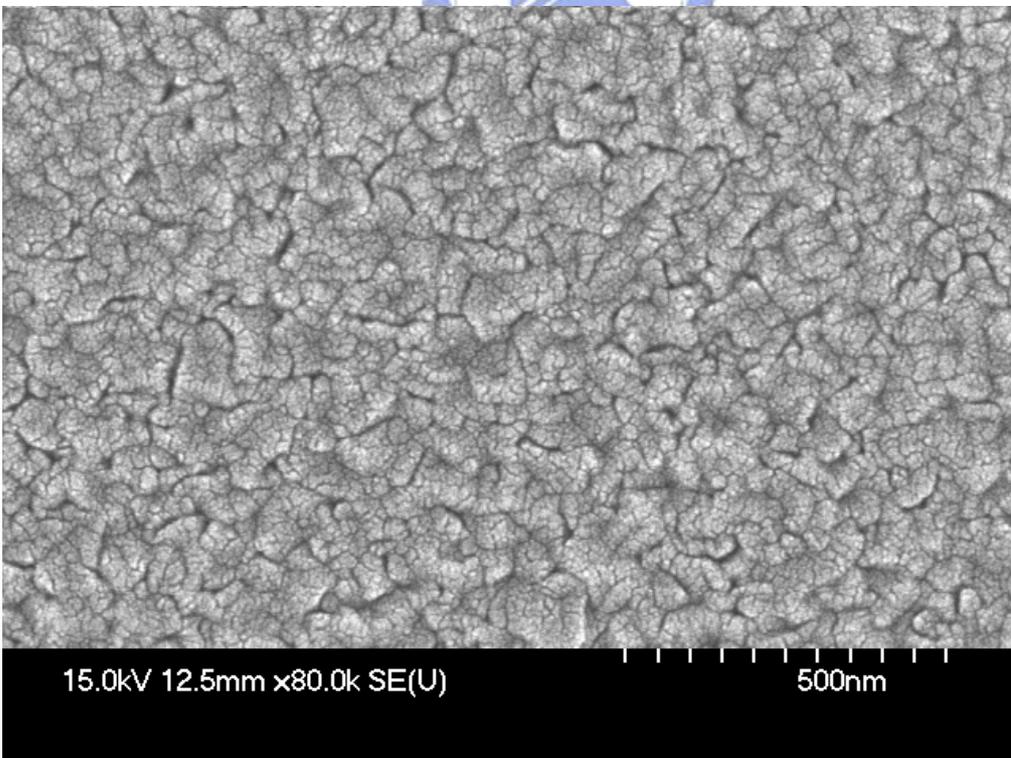


Fig. 4-15-5 SEM image of the 4000Å 4wt% grown ZnO film. (Prf = 80W, Pw = 2.5mTorr)

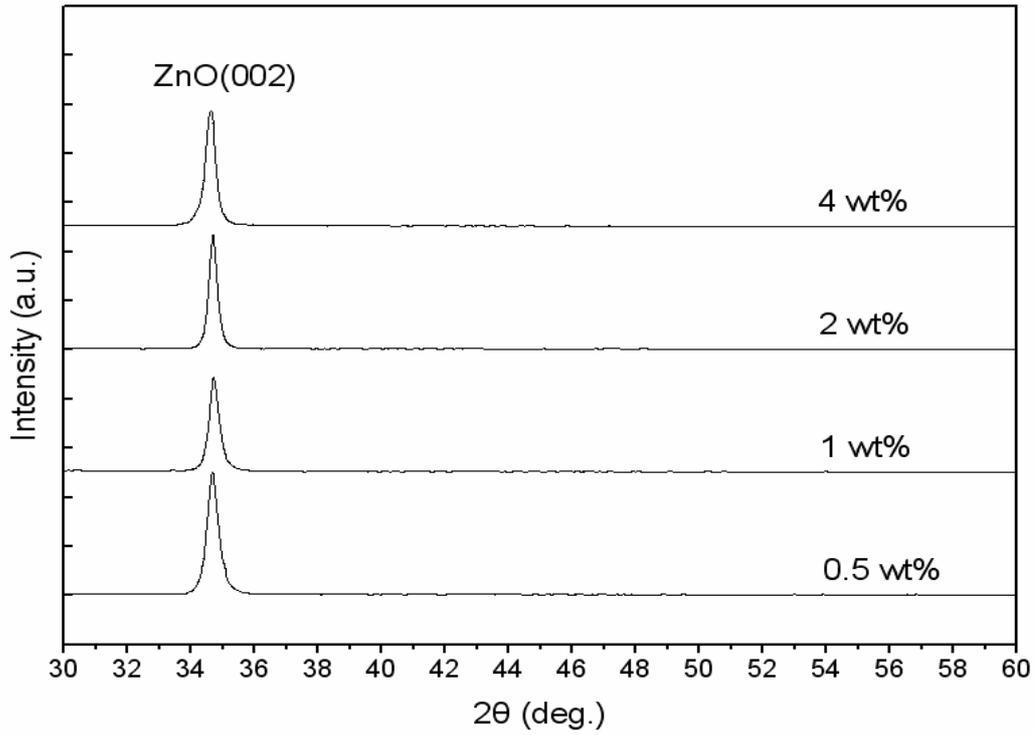


Fig. 4-16 XRD patterns of the 4000Å AZO films prepared by different Al_2O_3 content of target at $P_{rf} = 80\text{W}$ and $P_w = 2.5\text{mTorr}$.

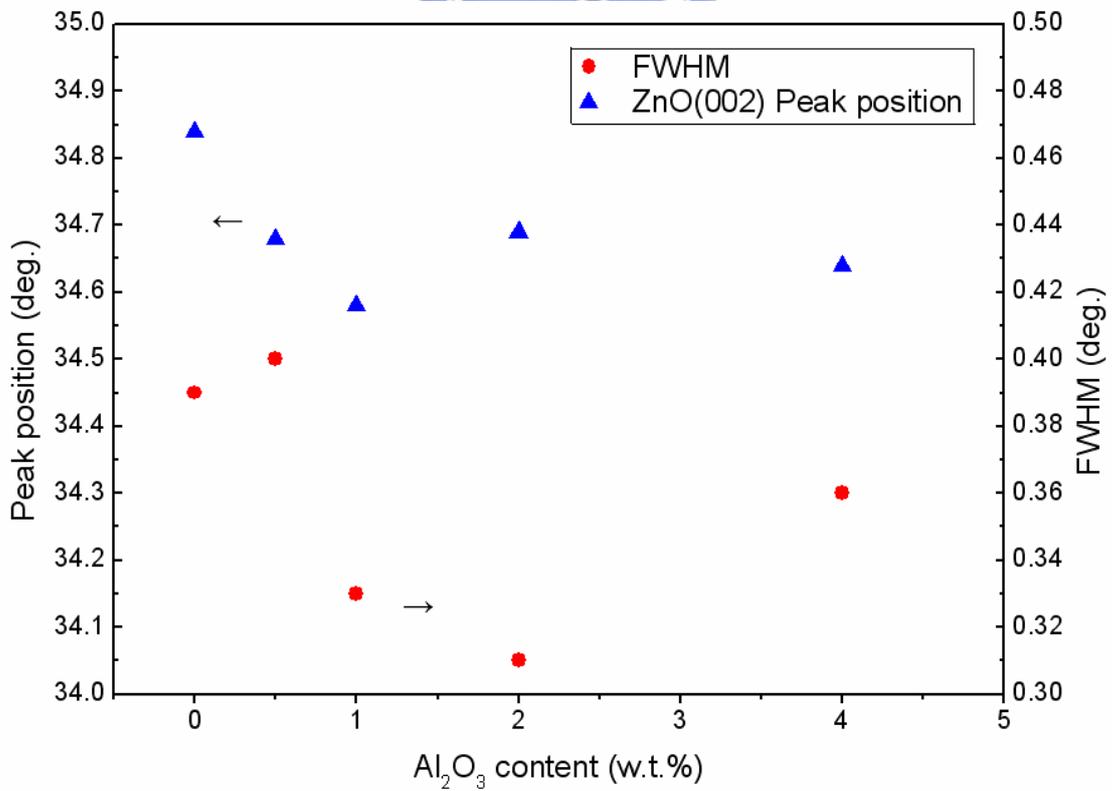


Fig. 4-17 Peak position and FWHM of the 4000Å AZO films prepared by different Al_2O_3 content of target at $P_{rf} = 80\text{W}$ and $P_w = 2.5\text{mTorr}$.

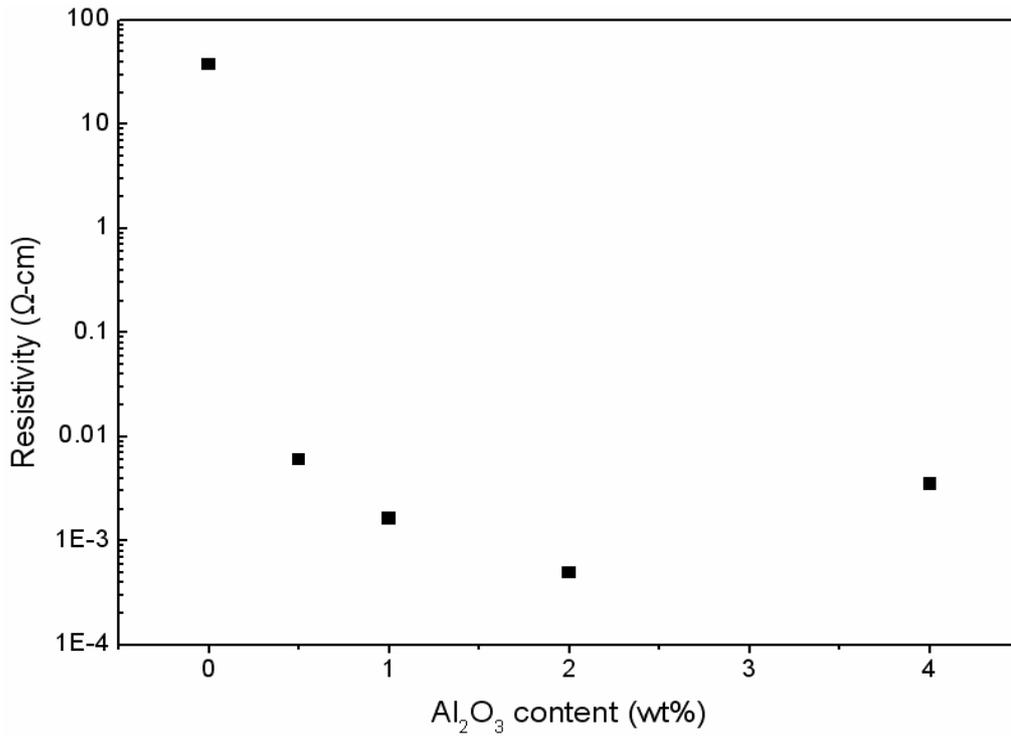


Fig. 4-18 The dependence of resistivity and Al₂O₃ content of target for 4000Å AZO films.

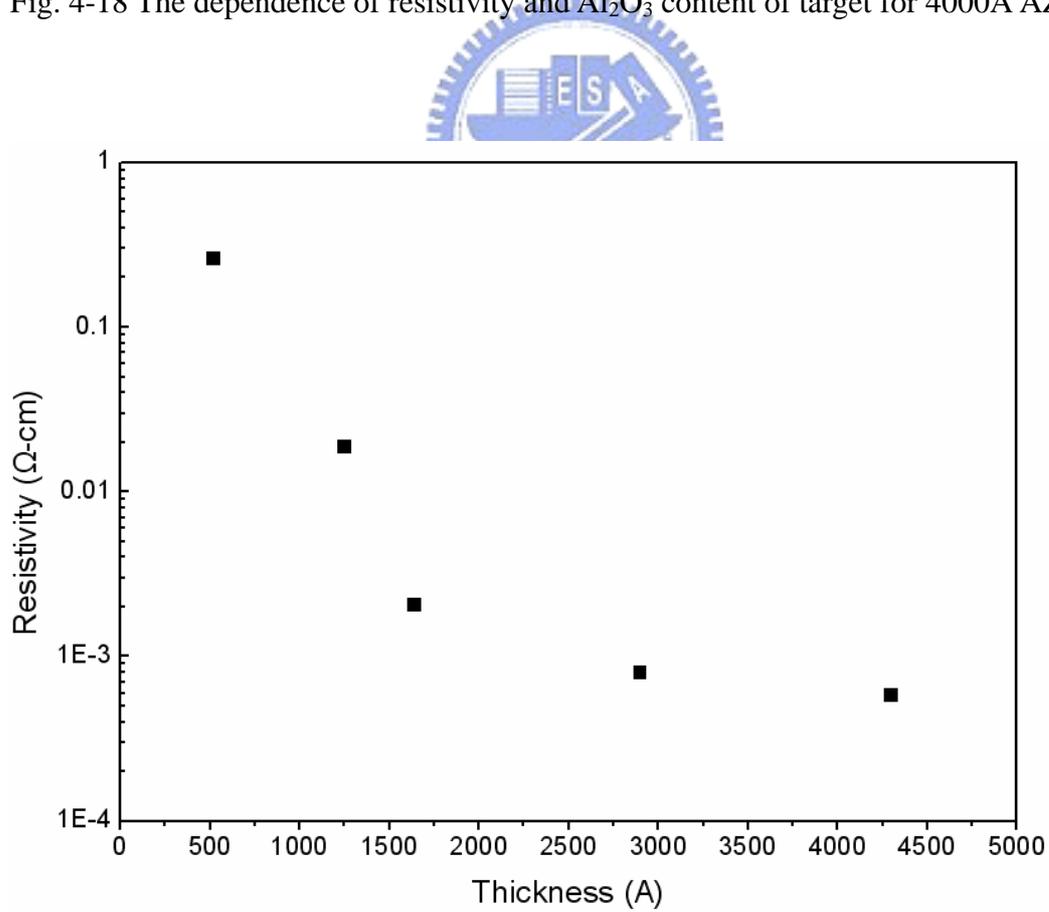


Fig. 4-19 The dependence of resistivity and film thickness for 2wt% grown AZO films.

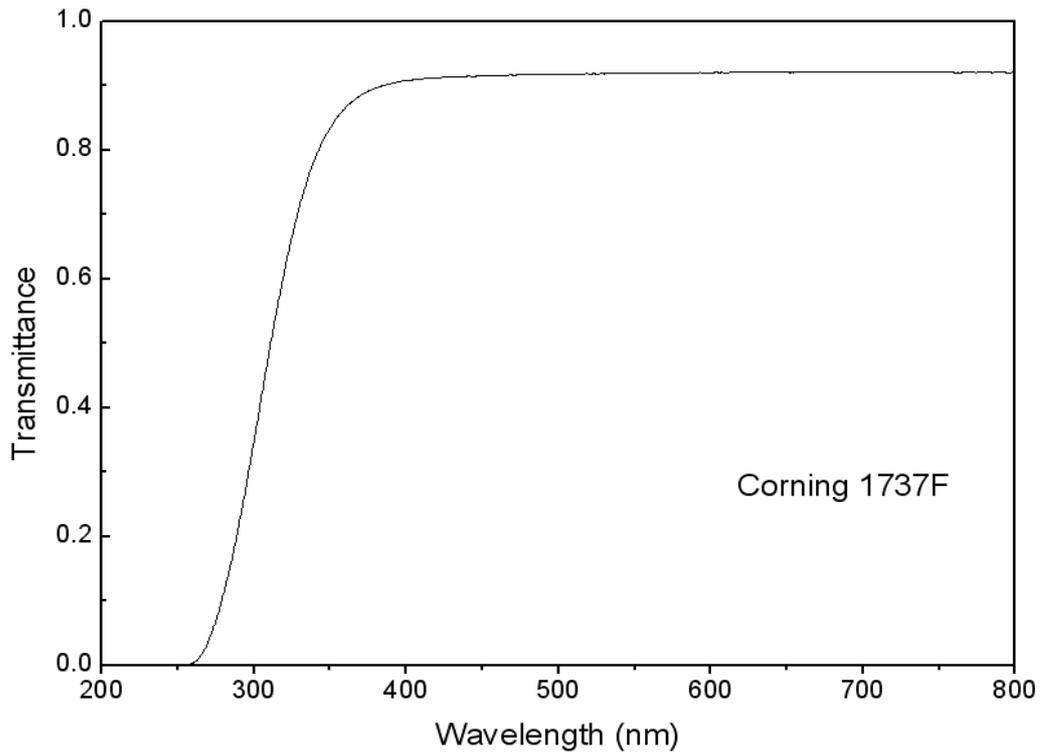


Fig. 4-20 The optical transmittance of Corning 1737F glass substrate.

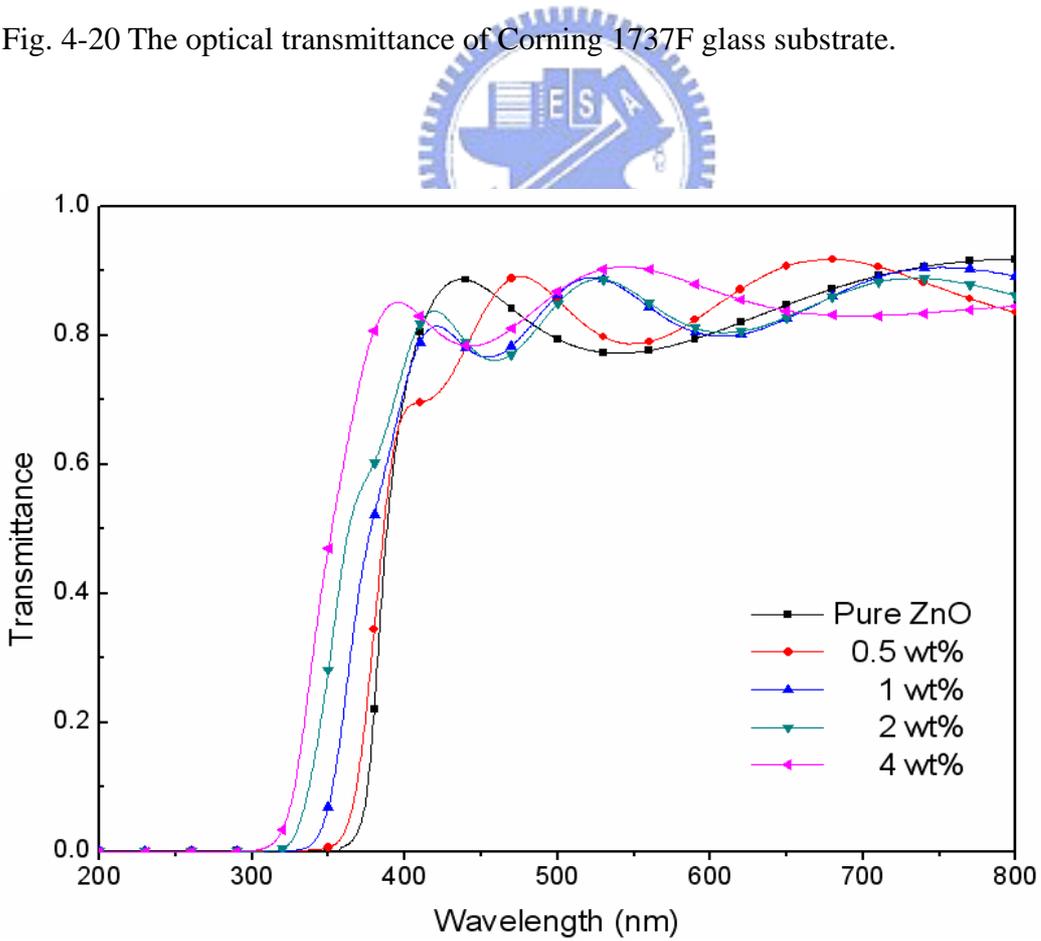


Fig. 4-21 The optical transmittance of the 4000Å AZO films prepared by different wt% target.

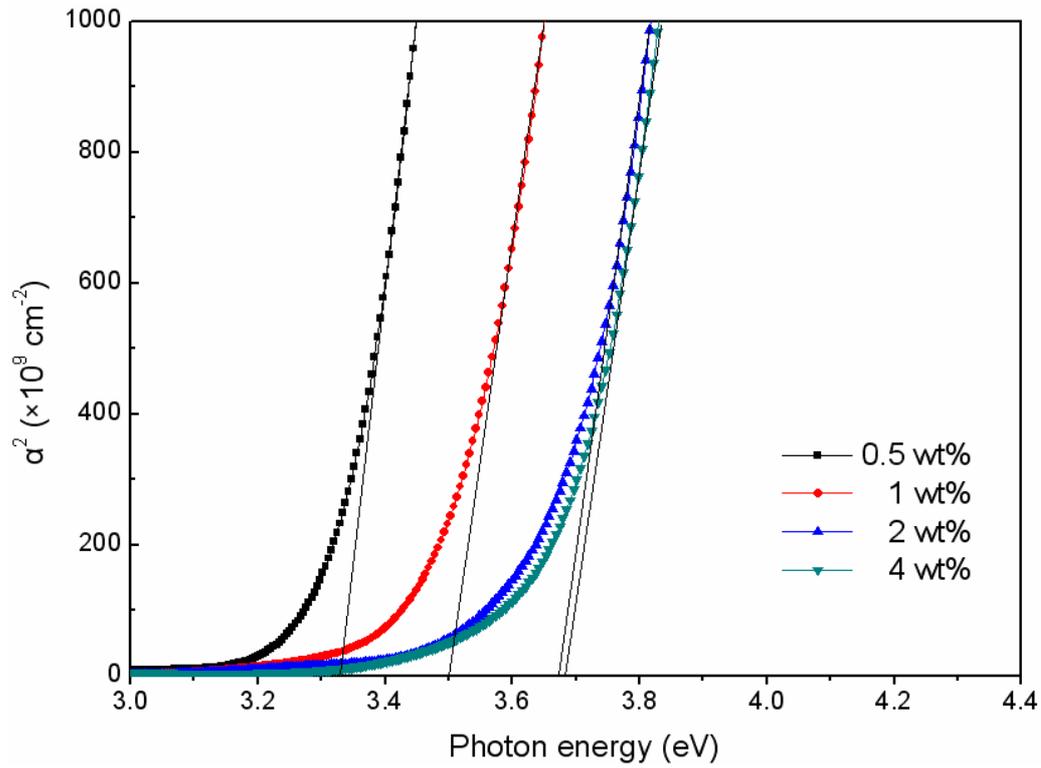


Fig. 4-22 The optical bandgap of the 4000Å AZO films prepared by different wt% target.

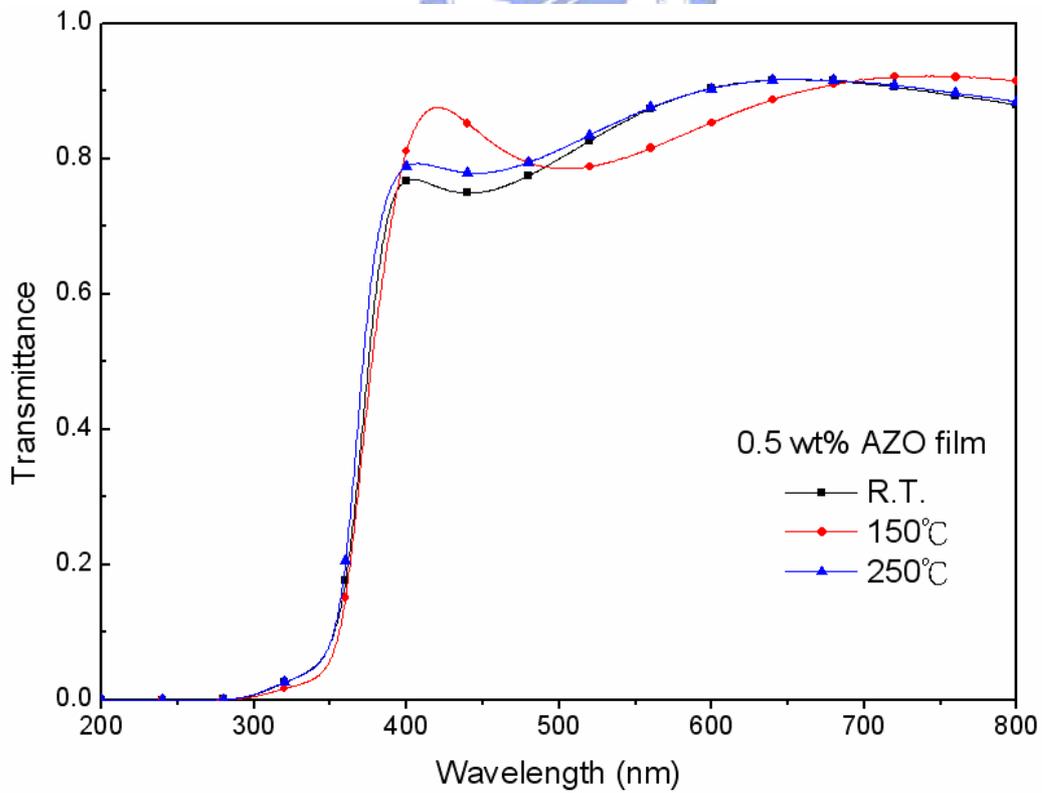


Fig. 4-23-1 The optical transmittance of 0.5wt% grown AZO films prepared by different substrate temperature.

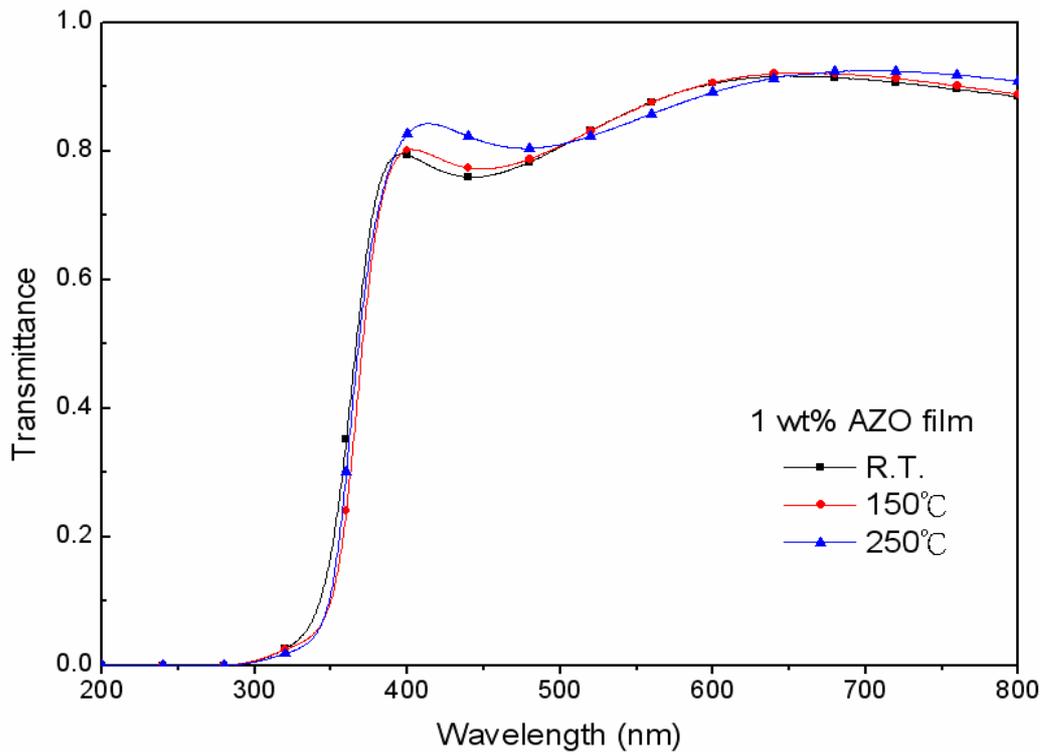


Fig. 4-23-2 The optical transmittance of 1wt% grown AZO films prepared by different substrate temperature.

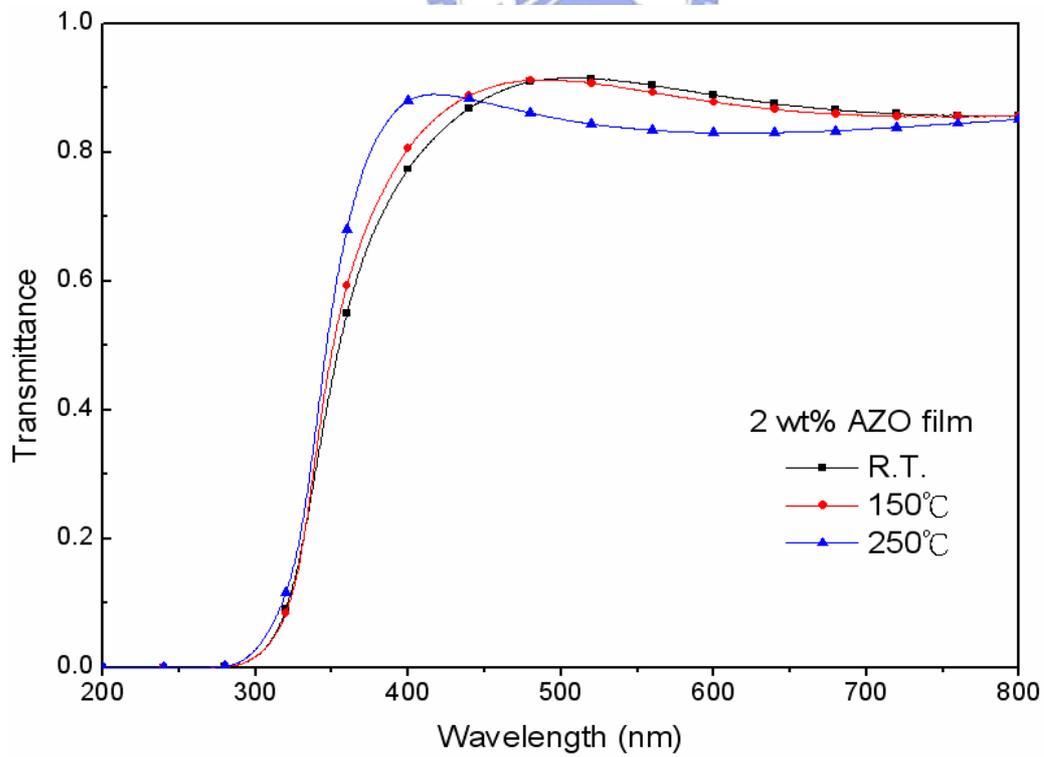


Fig. 4-23-3 The optical transmittance of 2wt% grown AZO films prepared by different substrate temperature.

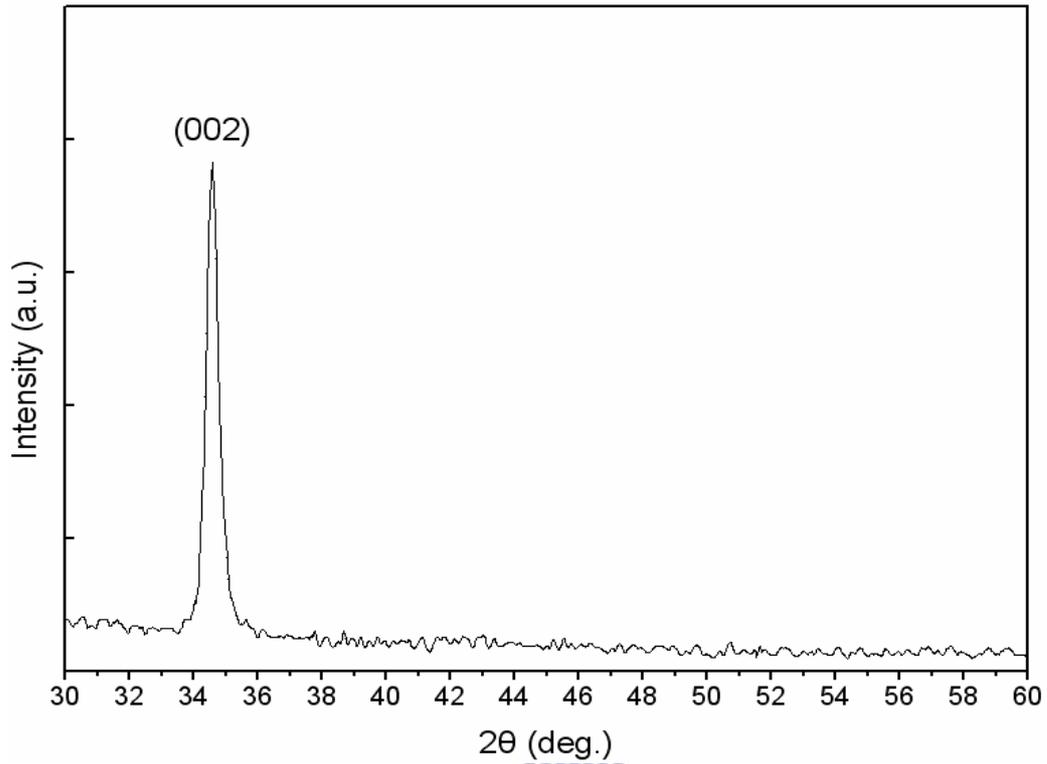


Fig. 4-24 The XRD pattern of 2wt% grown AZO films at Ar/O₂ = 10%.

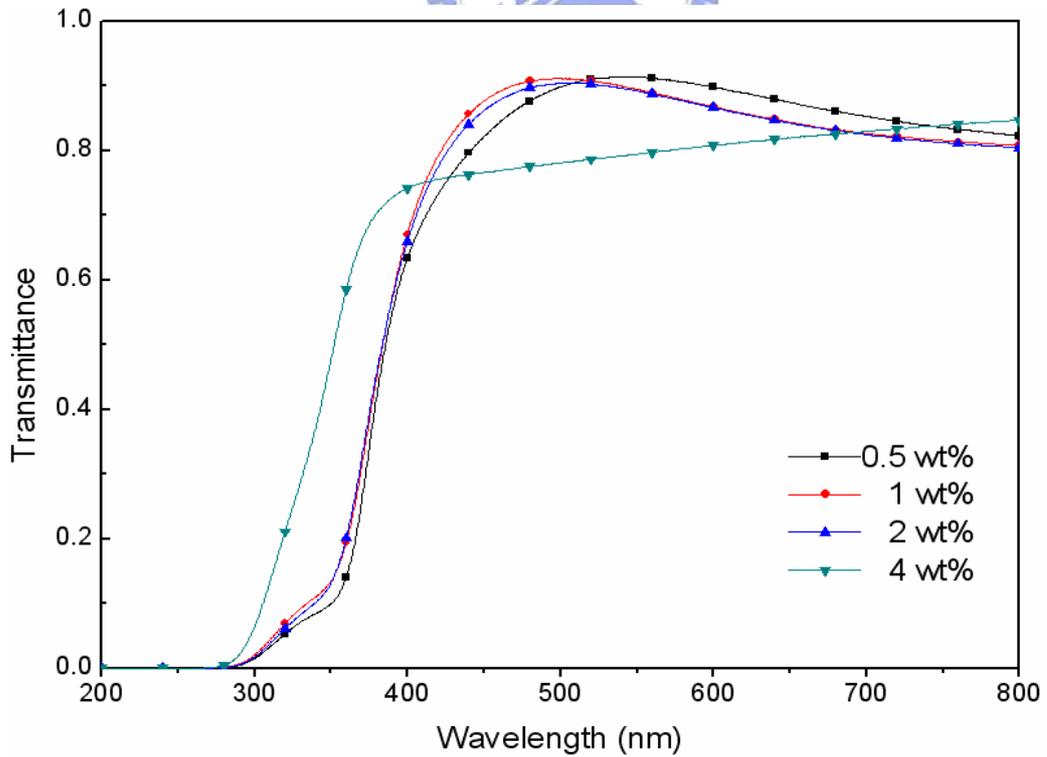


Fig. 4-25 The optical transmittance of the AZO films prepared by different Al₂O₃ content of target at O₂/Ar = 10%.

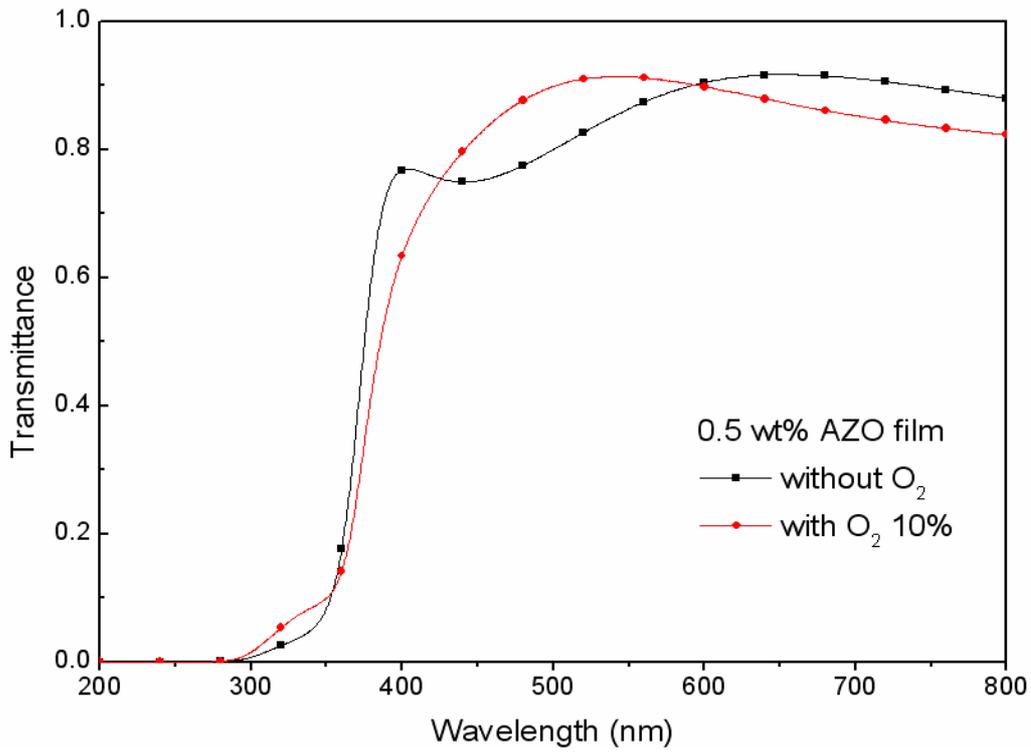


Fig. 4-26-1 The optical transmittance of 0.5wt% grown AZO films at O₂/Ar = 0% and 10%.

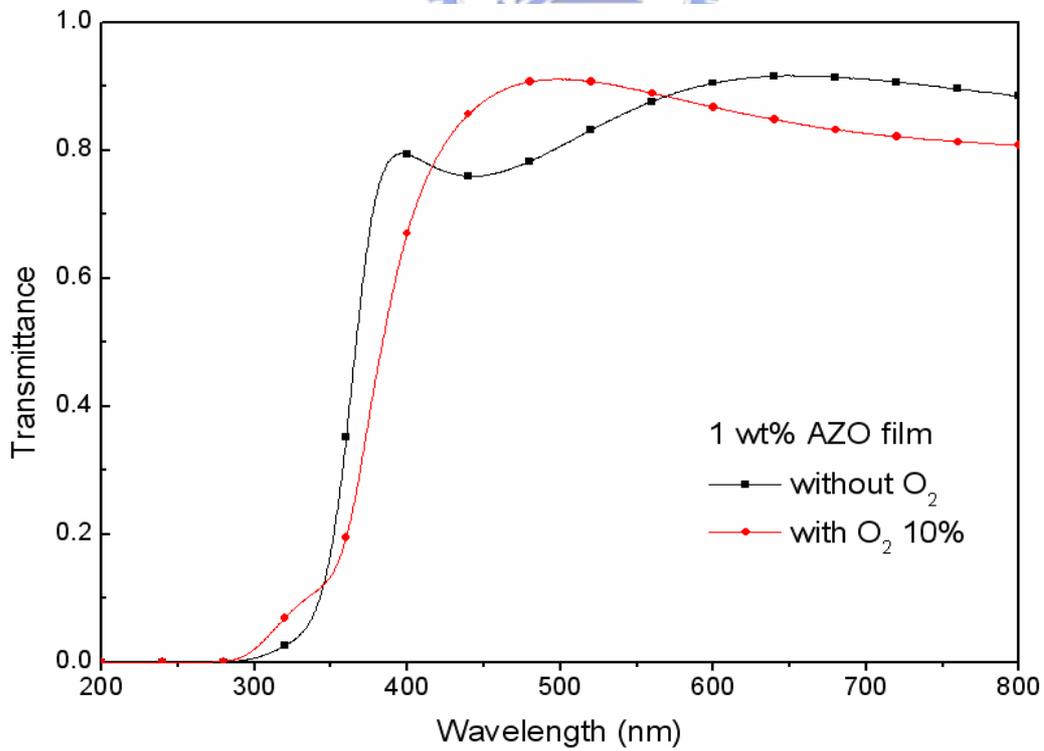


Fig. 4-26-2 The optical transmittance of 1wt% grown AZO films at O₂/Ar = 0% and 10%.

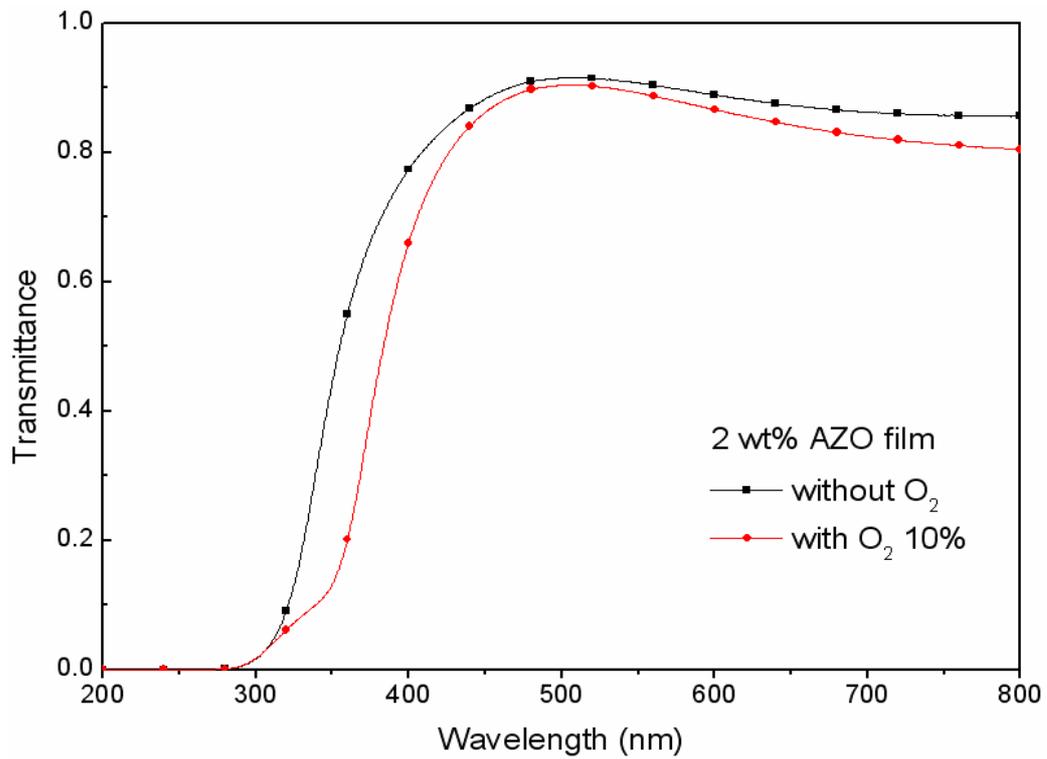


Fig. 4-26-3 The optical transmittance of 2wt% grown AZO films at O₂/Ar = 0% and 10%.

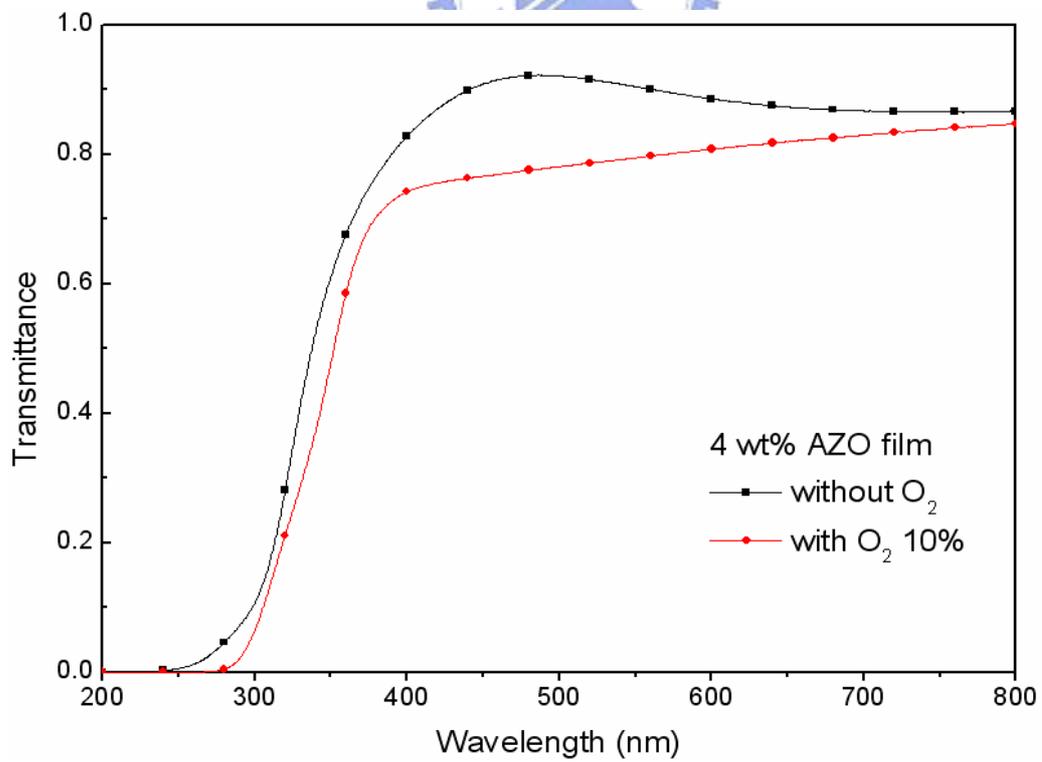


Fig. 4-26-4 The optical transmittance of 4wt% grown AZO films at O₂/Ar = 0% and 10%.