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Abstract
The R.F magnetron sputtering technique is employed in this study , ZnO thin films deposited on corning 1737F glass、 Si wafer (p-type (100)) by using ZnO target. The reaction atmosphere was mixture argon and oxygen. In the suitable controll by O2 concerntration, work pressure, R.F power and substrate, the ZnO thin film with C-axis preffered orientation was obtained.
The microstructure and properties of the resulting ZnO thin films were examined by using X-ray diffractometry、SEM、α- step、TEM and AFM.
The experimental result indicated that the ZnO thin films in the same sputtering condition, can obtain higher deposited rate on glass substrate. But ZnO thin films deposited on Si substrate got well C-axis crystallization on Si substrate. The best parameter of this research was 50m Torr pressure, 6% O2 concentration, R.F power 200W.
SEM plane view and cross-section images shows that the morphology of ZnO thin film grows from island structure to columnar structure. The result shows that heating substrate can help thin films well crystallization and smoother better than just increasing deposited time.
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