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Abstract
In this thesis, Aluminum Induced Crystallization (AIC) method was employed to crystallize a-Si films for low temperature Poly-Si TFT application. a-Si /Al/glass structures with various Si/Al thickness ratios were prepared using RF magnetron sputtering and were thermal annealed in N2 ambient for 10~720minutes. Results from XRD revealed that the optimum a-Si/Al thickness ratio was 4:1 for the Al induce recrystallization a-Si .The minimum crystallization temperature was found at 425℃ for 6 hours annealing.

To investigate the electric field effect, a novel parallel Field assisted thermal crystallization (FATC) process was introduced to enhance crystallization of the a-Si films. Preliminary analysis showed that this method had no significant enhancement on the AIC of the sputtered a-Si for the applied electric field up to 640V/cm.
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