

In Ga codoping ZnO thin film

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가 , , light emitting devices (LED)  
 , ZnO (3.37 eV) 가  
 , TCO . ZnO  
 devices 가  
 가 ZnO thin film . ZnO  
 spin coating  
 In Ga dopant 가 .  
 XRD UV-Vis spectroscopy Hall  
 measurement ZnO .  
 In Ga ZnO (400~ 800 nm) 80%  
 undoped ZnO film resistivity가  
 In Ga doping 3+ ZnO lattice 2+  
 가 가 . 가 In 0.5 mol%  
 ZnO film 7