

Modeling and simulation of In_{0.15} Ga_{0.85} N/GaN strainquantum well structure for solar cells application

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Abstract : Quantum well solar cells based on III-V nitride semiconductor materials are a great technological interest by means to their physical and optical properties. In this study the effect of quantum well number on the characteristics (J-V), (P-V) and efficiency for the structure GaN/In_{0.15} Ga_{0.85} N/ GaN was studied. our result showed that, the increase in the number of wells is accompanied by the increase of the light current density and the efficiency, for example with 50 wells we found $J_{light} = 14(\text{mA}/\text{cm}^2)$ and a efficiency 28%.

Keywords : Quantum well, solar cell, GaN, InGaN