

## **Application of InN Based Quantum Dot in Reducing Short Circuit Current Variation of Solar Cell above Room Temperature**

### **Abstract**

This paper focuses on the applicability of InN based quantum dot in the active layer of the solar cell to reduce the short circuit current variation above the room temperature. We have investigated numerically the effect of temperature on the short circuit current of the solar cell using InN based quantum dot in the active layer of the solar cell. The numerical results are compared with those obtained by using Ge based quantum dot. The comparison results revealed that the short circuit current has been increased slightly but the variation of short circuit current has been reduced significantly in the case of using InN quantum dot in the active layer of the device structure. As the results, InN can be considered as the best alternative material to fabricate solar cell with higher short circuit current in upcoming decades.

Keywords; InN, Quantum Dot, Short Circuit Current, Temperature