

## **Minimization of open circuit voltage fluctuation of quantum dot based solar cell using InN**

### **Abstract**

This paper reports the improvement of open circuit voltage stability of solar cell using InN based quantum dot in the active layer of the device structure. We have analyzed theoretically the temperature dependence of the open circuit voltage of the solar cell to investigate its fluctuation using Ge and InN based quantum dot in the active layer of the solar cell. Numerical results obtained are compared. The comparison results reveal that the open circuit voltage has been reduced a little bit but the fluctuation of terminal voltage has been reduced significantly by using InN quantum dot in the active layer of the device structure. Therefore InN is proved to be an excellent material to fabricate solar cell to provide higher stability in the open circuit voltage of the solar cell in very near future.

### **Keywords**

InN; Open circuit voltage; Quantum dot; Temperature