

## **Si and CdTe solar photovoltaic: influence of back passivation contact designs on efficiency**

### **ABSTRACT**

Si and CdTe hetero-junction (HJ) solar cells are most promising in commercial stage photovoltaic (PV) technologies. Their contacts and interface defects related opto-electrical losses are still significant to limit its further technological benefit. PV cells back contact related opto-electric conversion difficulties declining drives advance passivation and back contact design are vital to improve PV efficiency. In this purpose software based inter-digited back contact (IBC) Si HJ cell and CdTe profound emitter as well as smart back contact design are carried out in this study. In the model architecture, enhancement of contact carrier conduction by smart back contacts is shown to improve electrical performance. Eventually the open circuit voltage and efficiency of the designed cells are realized to progress.