



Effect of CdTe layer thickness on the properties of CdS/CdTe solar cells

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Cadmium telluride (CdTe) is one of the leading materials fabricating low cost and high efficiency solar cells. In this work, a conventional structure of cadmium telluride solar cells was investigated and solar cell efficiency of 14.2% was achieved as a preliminary result using the hetero-structure of SnO₂/CdS/CdTe. In this study, cadmium sulfide layer was deposited using chemical bath deposition (CBD) method and cadmium telluride layer was deposited using close space sublimation process (CSS). Here, cadmium sulfide thickness was kept constant and the cadmium telluride layer thickness was varied to see the effect of CdTe layer thickness on cell properties. It was observed that the cell parameters such as open-circuit voltage and the fill factor improved considerably with increasing CdTe layer thickness and hence the cell efficiency showed a significant improvement. However, there was no considerable improvement in the short-circuit current density.

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