

# Abstract

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## **A Novel CuInS<sub>2</sub>/Polyaniline Base Heterojunction Solar Cell**

Copper indium disulfide (CuInS<sub>2</sub>) has direct band-gap energy of about 1.5 eV and a large absorption coefficient, which are well suited to the photovoltaic conversion of solar energy. In this task a novel fluorine doped tin oxide (FTO)/CuInS<sub>2</sub>/ polyaniline base/ZnO/FTO heterojunction solar cell was fabricated. CuInS<sub>2</sub> thin films were electrodeposited onto fluorine doped tin oxide substrate by the electrodeposition technique. Current–voltage characteristic curves were measured under darkness and illumination. It found that J<sub>sc</sub>, V<sub>oc</sub>, and η are 3.2x10<sup>-6</sup> A/cm<sup>2</sup>, 0.714 V and 1.92x10<sup>-3</sup> % for FTO/CuInS<sub>2</sub>/ZnO/ITO heterojunction solar cell while J<sub>sc</sub>, V<sub>oc</sub>, and η are 3.25x10<sup>-6</sup> A/cm<sup>2</sup>, 0.724 V and 1.8x10<sup>-3</sup> % for FTO/CuInS<sub>2</sub>/polyaniline base ZnO/ITO heterojunction solar cell.