

Cocktails of paste coating for enhancing CuInGaS_2 thin film solar cell performance

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In order to fabricate low cost and printable wide band-gap $\text{CuIn}_x\text{Ga}_{1-x}\text{S}_2$ (CIGS) thin film solar cells, a precursor solution based method was developed. Particularly, in this method, multiple coating method by two pastes with different properties was applied: one for thin dense layer (A) and the other for thick porous layer (B). Three model configurations (A+B, B+A, A+B+A) were realized by cocktails of the paste coating, and their structural, morphological, and optical properties were compared. A solar cell devices with these films were also fabricated showing the highest solar cell performance from A+B+A model. This result mainly results from significant enhancement of fill factor (FF) and open circuit voltage (V_{oc}) of the solar cell device with A+B+A configuration. The details will be discussed in the presentation about this study.