MIS Solar Cell Devices Based on a Cu2O Substrate Utilizing h-BN as an Insulating and Passivating Layer

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We demonstrate Cu2O based metal insulator semiconductor Schottky (MIS-Schottky) solar cells with efficiency exceeding 3%. A unique direct growth technique is employed in the fabrication, and hexagonal boron nitride (h-BN) serves simultaneously as a passivation and insulation layer on the active cuprous oxide (Cu2O) layer. The devices are the most efficient of any Cu2O based MIS-Schottky solar cells reported to date.

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