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PHOTOELECTRIC PROPERTIES OF VERTICAL CIGS/CdS HETEROSTRUCTURES

Photosensitive properties of heterostructures based on $CuInGaSe_2$ (CIGS) for solar cells were studied. Vertical structures $\mathrm{Mo/CIGS/CdS}$ with indium tin oxide (ITO) as a transparent top electrode were grown on glass substrates. Raman spectroscopy manifested modes typical for CIGS within 170–270 cm^{-1}. The photovoltage spectroscopy revealed CIGS as the anode and CdS as the cathode. The heterostructure was found to be photosensitive with the onset at ~ 1.0 eV and allowed us to estimate the optical bandgap of the CIGS film about 1.10eV at room temperature and 1.12eV at 80 K. The barrier height for charge carriers, estimated from the capacitance–voltage profile is about 0.65 eV. The current–voltage characteristic is varistor-like, possibly due to an opposite barrier at the $\mathrm{CdS/ITO}$ interface.
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