Short Communication

Chemical Deposition of ITO/CdS/PbS/C for Low Voltage Photosensor Applications

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In this work we report the assembling and electrical characterization of ITO/CdS/PbS/C heterostructured photosensor. The assembling of the photosensor was done completely by solution processing, employing the chemical bath deposition (CBD) technique to deposit both semiconductor layers in the device, CdS and PbS. ITO-coated glass was used as substrate and graphite ink electrodes as back contacts. The electrical output response of the photodevices was analyzed in dark and under illumination at different intensities. Its sensitivity was examined working as photodiode at zero volts. The results showed the rectifying character of the heterostructure and light sensitivity with linear photoresponse under illumination. The measured photoresponsivity of the photosensor was 1.22 A/W, which is around 50 % of an ideal characteristic of a sensor for a given spectral range.

Keywords: photosensors; hybrid photodiodes; solution growth; chemical deposition.

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