Characterization of CdTe thin films grow on glass by hot wall epitaxy

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CdTe has been regarded as a prime candidate for solar cells, gamma and x-ray detectors fabrication. [1] The most used technique use do produce CdTe thin films has been closed spaced sublimation (CSS), which has yielded the best thin film solar cells. [2] In this work, we have grown CdTe thin films using hot wall epitaxy (HWE). HWE is a very simple and cheap technique, which has been used to produce high quality epitaxial layers on different substrate materials, like silicon and gallium arsenide.[3] Its most important feature is the growth at very low temperatures, which would allow the growth on polymer substrates. Our samples were grown on glass substrates at temperatures between 150 and 250 °C at a growth rate about 0.3 μm/h. The CdTe films were characterized by x-ray diffraction, scanning electron microscopy and optical transmission. The x-ray teta-2teta scans revealed films with cubic structure and a very high (111) preferential orientation. In fact, no other reflections have been observed on the spectra besides the (111), (333) and (444). The scanning electron micrographs showed a grain size about 0.3 μm and the optical transmission showed pronoumced interference fringes, indicating a good optical quality of the interfaces.

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