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Effects of Various RF Powers on CdTe Thin Film Growth Using RF Magnetron Sputtering MOHAMMAD ALIBAKHSHI, ZOHREH GHORAN-NEVIS, Department of Physics, Azad University, Tehran, Iran — Cadmium telluride (CdTe) film was deposited using the magnetron sputtering system onto a glass substrate at various deposition times and radio frequency (RF) powers. Ar gas was used to generate plasma to sputter the CdTe atoms from CdTe target. Effects of two experimental parameters of deposition time and RF power were investigated on the physical properties of the CdTe films. X-ray Diffraction (XRD) analysis showed that the films exhibited polycrystalline nature of CdTe structure with the (111) orientation as the most prominent peak. Optimum condition to grow the CdTe film was obtained and it was found that increasing the deposition time and RF power increases the crystallinity of the films. From the profilometer and XRD data's, the thicknesses and crystal sizes of the CdTe films increased at the higher RF power and the longer deposition time, which results in affecting the band gap as well. From atomic force microscopy (AFM) analysis we found that roughnesses of the films depend on the deposition time and is independent of the RF power.

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