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Effect of γ-radiation on CdTe/CdS solar cells[1] SOBIR MURATOV, Senior teacher — Heterostructures on the base of CdTe/CdS is widely used in modern photovoltaics. It is well known that during preparation of the CdTe/CdS heterostructures and annealing solid solutions $CdTe_{1-x}S_x$ are formed due to diffusion of Te atoms into CdS and S atoms into CdTe. This work present a study of the effect of γ-radiation on CdTe/CdS solar cells. The heterostructures are prepared on $1cm^2$ molybdenum substrate. It is found that output parameters of the cells change non-monotonicaly upon monotonic increase of the intensity of the γ-radiation. At lower intensities, short-circuit current increases and open-circuit voltage decrease, while at higher intensities short-circuit current decrease and open-circuit voltage increase with increasing the intensity of γ-radiation. It is found that the radiation-induced increase of the short-circuit current is much faster than decrease of the open-circuit voltage. As result, efficiency slightly increases with increasing the radiation intensity at low intensities and decreases at higher intensities. The reason of the non-monotonic change of the output parameters is related to generation of the radiation defects, which increases the compensation degree of the base layer. This suggestion is tested by measuring the specific resistance as a function of the γ-radiation intensity. It is found that the specific resistance also changes non-monotonically upon monotonic increase of the γ-radiation intensity, thus confirming the above suggestion.

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