cultivated on the Mo backing. Summing up, the following conclusions can be drawn: quantitative chemical analysis carried out with the help of the AUGE-spectroscopy method makes it possible to obtain more accurate data on relative concentration of alloy components as compared with the methods used in the work. This method is much simpler than others. On the basis of the undertaken examination of chemical shifts in OGE-peaks in the spectrum, it was determined that heating of the CdTe alloy at temperature exceeding 1,200^{O} K leads to partial oxidation of Cd and Te atoms.

It was also found that partial oxidations of the CdTe layer's surface results in deterioration of some physical and chemical properties of CdTe layers synthesized on the Mo backing.

For the denominator of the above expression, it is necessary to sum the J/S ratio for all found AUGE-peaks for each element in the spectrum.

Calculation results showed that the relative 1concentration levels of components in the CdTe alloy reached 63 per cent of Te atoms and 37 per cent of Cd atoms. When comparing the figures of relative concentration of CdTe components with the data obtained by the authors with help of other methods [1,2], one can see that the indicators measured are well coherent. To find out the degree of CdTe layer's temperature resistance, the authors examined changes in relative concentration of the compound's components at various temperatures (300^{O} -1500 ^{O} K) and time of fixation (10-30 min.). The latter was received after thermal processing at temperature 1200 ^{O} K within 25-30 min. It is clearly seen that after such thermal processing, there appear satellite (additional) OGE-peaks near the OGE-peaks of Te and Cd. The emergence of such additional peaks is a result of partial oxidations of Te and Cd atoms, which, in turn, start combining with O atoms under the influence of heating temperature.

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INFLUENCE OF PRETREATMENT TEMPERATURE CYCLING ON THE RADIATING DEFECT FORMATION IN SILICON DOPED BY SAMARIUM

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The raise of thermal and radiation stability as it is known, is one of actual problems of physics semiconductors. Recently it is established, that the rare-earth elements (REE) raise a

stability of silicon to exterior action. In this connection the investigation of silicon doped REE by samarium and influence on its properties of heat treatments and radiation exposure is important.

In sectional operation the outcomes of investigations of influence of samarium on thermal (600^0C are reduced; 600^0+900^0C; 900^0C; 900^0C+600^0C; 1100^0C; 600^0C+900^0C+1100^0C; 900^0C+600^0C+1100^0C) thermal defect formation and radiation defect formation (exposure of γ-quanta ^{60}Co) both in beforehand wrought, and in thermally unfinished samples. After each cycle of heat treatments samples cool fast (throwing off in oil) or slowly (together with the furnace).

Doping n-silicon REE by gadolinium and samarium was carried out during cultivation. The concentration of gadolinium and samarium in silicon, on sectional of a neutron-activation analysis was equaled 10^{14}–$5\cdot10^{18}$ cm^{-3}. As control is model monocrystal silicon such as KEP-15÷50. Para-meters of deep levels originating in control and doped REE samples, both past heat treatment or temperature cycling, and irradiated by the γ-quanta are defined by methods of a capacity spectroscopy: DLTS and IRC.

The obtained outcomes have shown, that in irradiated with the γ-quanta ^{60}Co deep levels samples are formed with energies: E_C-0,17 eV, E_C-0,32 eV, E_C-0,41 eV. Thus the parameters of deep levels vary depending on requirements of prestress heat treatment. For example heat treatment at 600^0C essentially increments a velocity of introduction of and centre (deep level of E_C-0,17 eV), in comparison with a velocity of introduction of this level in samples with prestress heat treatment at 900^0C. In samples n-Si doped by samarium effectiveness of formation of radiation imperfections and the diminution of a lifetime of minority carriers of a charge is much less, in 3-4 μs, than in control (not doped REE) samples.

The influence of heat treatments and effectiveness of introduction of radiation defects (RD) is explained by properties of samarium, as getter, formation of clusters and sinks RD, and modification of states of rigid solutions silicon - oxygen and silicon - carbon.

INFLUENCE OF THE RADIATION TYPE ON PROPERTIES OF SILICON DOPED BY ERBIUM

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It is known that on effectiveness of formation and kinetics of annealing of radiation damages presence causing, uncontrollable electrical of fissile or inactive impurities, the concentration and position in a lattice of the semiconductor strongly influence. From this point of view, the impurities of group of rare earths elements (REE) represent major interest, since interacting with primary radiation imperfections they create electrical passive complexes such as "impurity+defect", thus raising radiation stability of silicon.

The purpose of sectional operation was the investigations of influence such as radiation exposures: in γ-quanta ^{60}Co and high-velocity electrons with an energy 3,5 MeV on properties of silicon doped REE-erbium. The doping of silicon REE was carried out during cultivation. The concentration REE in silicon, on sectional of a neutron-activation analysis was equaled 10^{14}–10^{18} см$^{-3}$. As control is model the monocrystalline silicon such as KEP-15–50 was investigation. The