

SUMMARY

STUDY OF SOLAR BATTERY TEMPERATURE FOR DIFFERENT SYSTEMS COOLING AND DEGREES OF CONCENTRATION

Avaliani J.J., Kordzakhia I.I., Avaliani I.M., Chikovani R.I., Khachidze T.I.

Institute "Optica"

Georgian Technical University

When exposed to concentrated solar radiation on semiconductor materials, the heat exchange balance and difficulty in removing heat. 15 lenses with different parameters (diameter: 40-200 mm; area: 1600-3000 mm²; focal length: 80-650 mm; degree concentration: 80-1500). All lenses were manufactured at the Optics Institute. Lenses are made of organic glass PMMA. The original method was used to calculate the aspherical profiles recursive transformations. As a result of numerous measurements, a diagram was built dependence of the temperature on the surface of the photocell $m(c)$ on the degree of concentration K , $T = f(K)$. Comparison of the results obtained for the simulator and for a real Ga-As photocell showed that at a concentration above 100, artificial cooling of the photocell is required. Diagram $T = f(K)$, obtained with this cooling system, showed a sharp decrease in temperature. Presented by experimental research results. They can be used to create real Ga-As photocell modules.