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AUTHORS: Kot, M. V., and Simashkevich, A. V.

TITLE: The temperature dependence of the cathodic conductivity of cadmium sulfide and selenide

SOURCE: Kishinev. Universitet. Uchenyye zapiski. v. 49, 1961, 101-104

TEXT: A special tube was devised and constructed for measuring the temperature dependence of the cathodic, photo- and dark conductivity of CdS and CdSe. The measuring circuit was the same as already used (Uch. zap. KGU, 29, 201, 1957). The pressure inside the tube was not above 10^{-5} mm Hg. The measurements were made with crystals obtained from the gaseous phase which were glued onto glass backings, and with CdSe films condensed in vacuo onto hot (200°C) glass bases. The temperature dependence of the cathodic conductivity was measured using an electron beam of 3 keV and $2 \cdot 10^{-8}$ a. The specimens investigated were held in vacuo for 24 hrs and purified by electron bombardment so as to ensure well
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reproducible results. When gas is adsorbed on the specimens the cathodic conductivity is much lower, but only so below 0°C. The photoconductivity, measured with specimens irradiated by white light, showed a similar temperature dependence and is affected by adsorbed air in a similar and reversible way. Also the temperature dependence of the dark conductivity is strongly influenced by surface degasification. The conductivity maximum observed near room temperature for mono- and polycrystalline as well as film samples vanishes when the samples are degasified. There are 4 figures.