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PHOTOCONDUCTING PROPERTIES OF $CuInSe_2$

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Ternary chalcopyrite semiconductors are currently of technological interest since they show promise for numerous applications in opto-electronic devices. We have studied the photoconducting properties of the I-III-VI_2 chalcopyrite compound $CuInSe_2$. In order to prepare $CuInSe_2$ crystals, high purity elements were weighed according to the required stoichiometric ratio, sealed in quartz tubes under 10^{-5} Torr vacuum, gradually heated to melt and allowed to cool down slowly through the freezing point.

Current-voltage characteristics and the variation of photo-current with incident light intensity were studied. Near-normal incidence reflectivity spectrum was measured at room temperature in the wavelength range 400 nm to 700 nm. Results are interpreted in relation to the electronic structure of the material.

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