

SOME ELECTRICAL PROPERTIES OF MIXED AMORPHOUS THIN
FILMS OF GERMANIUM AND SILICON MONOXIDE

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The results of a study of some electrical properties of mixed amorphous thin films of germanium and silicon monoxide are presented. The co-evaporated SiO_x -Ge system was studied. Thin film MIM (Metal-Insulator-Metal) sandwich structures for the measurement of electrical properties were deposited on Corning 7059 glass using a vacuum evaporation unit. The films were deposited at a pressure of 10^4 Pa and were measured at a pressure of 10^{-3} Pa.

The conductivity at low temperature and d.c. fields, has been found to be governed by a combination of an electronic hopping process and free band conduction. At fields greater than $2 \times 10^6 \text{ Vm}^{-1}$, it is concluded that the conduction process is governed by the Poole-Frenkel effect.

Comparison with earlier results on $\text{SiO}_x/\text{GeO}_2$ films showed small differences in activation energy for conduction for samples of broadly similar overall composition.

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