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ABSTRACT

Three chalcogenide glasses of $Ge_{20} Se_{12} Te_{68}$, $Ge_{27} Se_{11} Te_{62}$ and $Ge_{14} Te_{75} In_{10}$ have been prapered by quenching their melts from about 1000 °C in ice water . Rectangular discs of 2 x 2 x 1 mm^3 dimensions are subjected to electrical conductivity measurements . It is found that the mentioned systems behave the normal semiconductors behaviour with activation energies of about 0.5 eV.

The effect of thermal annealing on the both conductivity and the activation energy is studied to follow up the effect of aging on the stability of these systems . It is found in general that the conductivity increases with annealing time . Besides, the activation energies decrease with annealing time . This is suggested to be due to the nucleation and growth process . This result are confirmed with X-ray analysis .

In the other hand, I-V characteristics showed memory switching phenomena . The switching process is interpreted according to the electrothermal model.