

Thermal Diffusivity Studies on Ge-Te-I Glasses Using Photothermal Deflection Spectroscopy

P. Pattanayak, N. Manikandan^S, M. Paulraj and S. Asokan^C

Department of Instrumentation, Indian Institute of Science, Bangalore, India.

sasokan@isu.iisc.ernet.in

Composition dependence of thermal diffusivity for $\text{Ge}_{22}\text{Te}_{78-x}\text{I}_x$ system of chalcogenide glasses was studied using a custom-built Photo-thermal Deflection Spectroscopy (PDS) setup. The thermal diffusivity of these samples lie in the range $0.046 - 0.007 \text{ cm}^2/\text{sec}$. A sudden decrease is observed in the thermal diffusivity of these glasses around the composition $x = 5$, which is also seen in other properties such as electrical switching voltages. Based on the present thermal diffusivity studies and other investigations, it is proposed that the composition $x = 5$ corresponds to the Mechanical Threshold of this glassy system.