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Kinetics of non-isothermal crystallization in Ga10Se90 chalcogenide glass
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Abstract
The present research work deals with the thermal behavior of Ga10Se90 chalcogenide glass prepared by melt quenching technique. The kinetics of crystallization of Ga10Se90 glassy alloy at different heating rates 5, 10, 15, 20, 25, 30 K/min was studied by differential scanning calorimetry (DSC) using non-isothermal means. DSC experimental method is currently employed for determining the kinetic parameters of crystallization in Ga10Se90 glassy alloy. These parameters include the activation energy of crystallization (Ec), activation energy of glass transition temperature (Eg) and crystallization enthalpy (ΔHc). The average value of Ec is found to 96.06 kJ/mol and Eg is found to be 151.17 kJ/mol respectively. The results of crystallization have been discussed on the basis of different models such as Kissinger's approach and modification for non-isothermal crystallization in addition to Ozawa and Avrami.

Author Keywords
Activation energy; Chalcogenide; Crystallization kinetics; Glass transition temperature

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