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**Aging Effects in the Thermal Conductivity of Glass-forming Liquids** CHANDAN DASGUPTA, PRANAB JYOTI BHUYAN, RITUPARNO MANDAL, Indian Institute of Science, Bangalore, India, PINAKI CHAUDHURI, The Institute of Mathematical Sciences, Chennai, India, ABHISHEK DHAR, International Centre for Theoretical Sciences, Bangalore, India — Using extensive numerical simulations of a model glass former (the three dimensional Kob-Andersen binary Lennard-Jones mixture), we have studied the dependence of the thermal conductivity of the supercooled liquid and the low-temperature glass on the history of preparation, such as the rate at which the temperature is decreased to prepare the glass from the high-temperature liquid state. We show that the thermal conductivity at temperatures near and below the ideal glass transition temperature of mode coupling theory depends on the rate of cooling and the age of the glass. Further, we demonstrate that the observed decrease in the thermal conductivity of a glass with increasing age (or with decreasing cooling rate) is linked to the exploration of lower energy local minima (inherent structures) of the underlying potential energy landscape. Finally, by calculating the vibrational density of states of these inherent structures, we show that the variation of the thermal conductivity with age is related to the extent of localization of the low-frequency vibrational modes, with increased localization leading to lower values of the thermal conductivity.

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