Turkish Journal of Physics

Keywords
Authors

The Normal and Inverted Meyer-Neldel Rule in the ac Conductivity

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Abstract: Recently, a new approach has been proposed for the correlated barrier hopping (CBH) model where the ac relaxation time is thought to obey the Meyer-Neldel (MN) rule. This approach gives quantitative agreement with some reliable published experimental data. We report on an experiment involving the characterization of the ac conductivity of Se-Te thin films over a wide range of frequencies and temperatures, carried out in order to confirm applicability of the MN rule to the ac conductivity. In addition to the normal MN rule, the inverted MN rule was observed.

Key Words: The Meyer-Neldel rule, Correlated barrier hopping, Relaxation time