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Ac conductivity and dielectric measurements of bulk pyronine G(Y)

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Abstract

Electrical conductivity measurements of pyronine G(Y) were performed as a function of both temperature (303-443 K) and frequency (50 Hz-550 kHz). The frequency dependence of ac conductivity is well represented by the form ω^s . The values of exponent, (s) decrease from 0.98 at 303 K to 0.67 at 403 K. The temperature dependence of both ac electrical conductivity and the exponent (s) reveals that the ac conduction is due to the correlated barrier hopping (CBH). The dielectric constant, $\epsilon_1(\omega)$ and dielectric loss, $\epsilon_2(\omega)$, have been determined for bulk pyronine G(Y). Both $\epsilon_1(\omega)$ and $\epsilon_2(\omega)$ decrease by increasing frequency and increase by increasing temperature. © 2009 EDP Sciences.

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