

Universal Scaling of Alpha Relaxation in Complex Liquids

A. Kurbatov, P. Janik, A. Drozd-Rzoska, S. J. Rzoska,
M. Paluch, P. Malik, J. Ziolo, and J. Jadzyn^a

‘August Chelkowski’ Institute of Physics, Silesian University,
ul. Uniwersytecka 4, 40-007 Katowice, Poland

^a Institute of Molecular Physics, Polish Academy of Sciences,
ul. A. Smoluchowskiego 17, 60-179 Poznań, Poland

Reprint requests to Prof. S. J. R.; E-mail: rzoska@us.edu.pl

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A plot is given, showing the result of a scaling analysis of dielectric loss curves containing, apart from low molecular glass former data (glycerol, dibutyl phthalate), also loss curves of the following liquid crystalline materials, mostly in the isotropic phase: 4-(2-methylbutyl)-4'-cyanobiphenyl (5*CB, supercooled isotropic phase), 4-cyano-4-n-alkyl biphenyls (nematogens 5CB and 8CB, isotropic phase), 4-(4-cyano-4-butylcyclohexyl)-4'-octylbiphenyl (laterally substituted nematogen, isotropic phase), and 4-n-alkyl-4'-isothiocyanatobiphenyl (5 and 10 BT, isotropic and SmE phases). The plot applies the scaling formula originally proposed for glassforming, supercooled liquids [Dendzik et al.⁷]. The result supports the recent suggestion that dielectric relaxation in the isotropic phase of nematogens may show some features typical for “glassy” materials.

Key words: Complex Liquids Supercooled Liquids; Liquid Crystals; Dielectric Loss Curves; Universality.

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