Nematic Potential and Order Parameter Determined from Dielectric Measurements

A. Würflinger

Physikalische Chemie II, Ruhr-Universität, D-44780 Bochum

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The Maier-Saupe theory is employed in order to calculate order parameters S from the nematic potential q. It is found that one of the basic assumptions of the Maier-Saupe theory, $q \sim S$, is approximately fulfilled. The relation between q and S is analysed for various state changes. Previously reported findings for 7 PCH that $q \sim S$, not fulfilled along isochoric changes, can be explained by taking into account the pressure and temperature dependences of q. The procedure described in this paper allows to treat experimental data for the nematic potential in a unique way, without being affected by inadequacies of experimentally determined order parameters.

Key words: Liquid Crystals; High Pressure; Nematic Potential; Dielectric Relaxation.

Reprint requests to Prof. A. Würflinger. Fax: +49 234 7094 183