Nematic Potential and Order Parameter Determined from Dielectric Measurements

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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.

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