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Thermal instabilities in nematic liquid crystals

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1977 J. Phys. A: Math. Gen. 10 1260

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Thermal instabilities in nematic liquid crystals
Barratt P J and Sloan D M 1976 *J. Phys. A: Math. Gen.* **9** 1987–98

In the original paper a term $C\phi v_3$ was inadvertently omitted from equation (3.5) which should read as

$$C\frac{\partial s}{\partial t} + C\phi v_3 = \kappa_1 s_{,ii} + \kappa_2 d_i d_j s_{,ij} + \phi\kappa_2(k_j d_i n_{j,i} + k_j d_j n_{i,i}), \qquad C = \frac{-T\partial^2 W_0}{\partial T^2}. \tag{3.5}$$

The inclusion of this term results in certain parameters, cited in equations (3.11) and (3.16), being adjusted as follows:

$$\lambda = \frac{\lambda_2 - \lambda_1 + 2C\alpha_1\alpha/\kappa_2}{\lambda_2 + \lambda_1 - 2C\alpha_1/\kappa_2}, \qquad R = \frac{-\rho' g\phi\kappa_2(\lambda_2 + \lambda_1 - 2C\alpha_1/\kappa_2)h^4}{\alpha_1\kappa_1\pi^4\eta_a},$$

$$\lambda' = \frac{\lambda_2 + \lambda_1 + 2C\alpha_3\alpha'/\kappa_2}{\lambda_2 - \lambda_1 - 2C\alpha_3/\kappa_2}, \qquad R' = \frac{-\rho' g\phi\kappa_2(\lambda_2 - \lambda_1 - 2C\alpha_3/\kappa_2)h^4}{\alpha_3(\kappa_1 + \kappa_2)\pi^4\eta_b}.$$

Typical values of the various material coefficients suggest that the correction terms to λ, λ', R and R' are usually insignificant. It seems that they may only be significant when either the material is one which adopts an almost parallel alignment when in shear flow, or large magnetic fields are applied. In the former event an inspection of the terms on the right-hand side of equations (3.10) and (3.14) suggests that the final results are not significantly affected by the correction terms. In the latter event it is possible in certain circumstances that a Frederiks transition may occur before the onset of a thermal instability.

Induced radiation of a charged particle in a time-periodic electromagnetic field
Ivanova E V, Malkin I A and Man'ko V I 1977 *J. Phys. A: Math. Gen.* **10** L75–7

The third expression in equation (4) should read

$$\sigma_{1;2} = \left(\dot{\epsilon}^* \mp \mathrm{i}\frac{\Omega}{2}\epsilon^*\right)\exp\left(\mp \mathrm{i}\int_0^t \frac{\Omega}{2}\,\mathrm{d}\tau\right).$$

A minus sign should be inserted before $(n_j + 1)$ in the fourth line from the bottom of page L76. The left-hand side of equation (7) should read $P_{\mathrm{sum}}(\boldsymbol{k}_\lambda, |\Omega_j - \omega l|, \boldsymbol{e}_{\lambda,\sigma})$. The word 'sum' should be inserted before 'effect' (to read 'sum effect') in the third line below equation (7) on page L77.