

Travelling waves in anisotropic smectic C* liquid crystals

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Abstract. We consider minimality conditions for the speed of monotone travelling waves in a model of a sample of smectic C* liquid crystal subject to a constant electric field, dealing with both isotropic and anisotropic cases. Such conditions are important in understanding switching properties of a liquid crystal, and our focus is on understanding how the presence of anisotropy can affect the speed and nature of switching. Through a study of travelling-wave solutions of a quasilinear parabolic equation, we obtain an estimate of the influence of anisotropy on the minimal speed, sufficient conditions for linear and non-linear minimal speed selection mechanisms to hold in different parameter regimes, and a characterisation of the boundary separating the linear and non-linear regimes in parameter space. This is joint work with Michael Grinfeld and Geoff McKay (Strathclyde).