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*Original*

Static splay-stripes in a hybrid aligned nematic layer / A. Sparavigna; L. Komitov; B. Stebler; A. Strigazzi. - In: MOLECULAR CRYSTALS AND LIQUID CRYSTALS. - ISSN 1056-8816. - 207:1(1991), pp. 265-280.

*Availability:*

This version is available at: 11583/1405996 since:

*Publisher:*

Gordon and Breach

*Published*

DOI:10.1080/10587259108032105

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# Static Splay-Stripes in a Hybrid Aligned Nematic Layer

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**DOI:** 10.1080/10587259108032105

**Publication Frequency:** 1 issue per year

**Published in:**  **Molecular Crystals and Liquid Crystals**, Volume **207**, Issue **1** October 1991 , pages 265 - 280

**Subjects:** Crystallography; Inorganic Chemistry; Materials Science;

**Formats available:** PDF (English)

## Abstract

A usual aperiodic hybrid alignment can appear in a nematic layer with weak anchoring only if the cell thickness is greater than a critical value  $d_h$ , below which a static periodic pattern instead of the hybrid aperiodic structure could be preferred, if the energy cost for a three dimensional deformation, involving twist, is less than the cost for the two-dimensional deformation of splay-bend type. We have studied the occurrence of the mechanical instability leading to the static periodic splay-stripes, i. e. in the case of the tilt anchoring stronger at the one of the walls, in which the anchoring is planar, for several values of the twist anchoring strengths. Here the behavior of the threshold  $d$  for the periodic stripes is presented and discussed as a function of the anchoring energies and of the ratio of nematic bulk elastic constants, in the frame of the usual continuum theory.