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4.2 The Flexoelectric Coefficients; 4.3 The Molecular Picture; 4.4 Analogies and Contrasts to the Piezoelectric Effect; 4.5 The Importance of Rational Sign Conventions; 4.6 Singularities are Charged in Liquid Crystals; 4.7 The Flexoelectrooptic Effect; 4.8 Why Can a Cholesteric Phase not be Biaxial?; 4.9 Flexoelectric Effects in the Smectic A Phase; 4.10 Flexoelectric Effects in the Smectic C Phase; 5 The SmA\* - SmC\* Transition and the Helical C\* State; 5.1 The Smectic C Order Parameter; 5.2 The SmA\* - SmC\* Transition; 5.3 The Smectic C\* Order Parameters; 5.4 The Helical Smectic C\* State; 5.5 The Flexoelectric Contribution in the Helical State; 5.6 Nonchiral Helielectrics and Antiferroelectrics; 5.7 Mesomorphic States without Director Symmetry; 5.8 Simple Landau Expansions; 5.9 The Electroclinic Effect; 5.10 The Deformed Helix Mode in Short Pitch Materials; 5.11 The Landau Expansion for the Helical C\* State; 5.12 The Pikin-Indenbom Order Parameter; 6 Electrooptics in the Surface-Stabilized State; 6.1 The Linear Electrooptic Effect; 6.2 The Quadratic Torque; 6.3 Switching Dynamics; 6.4 The Scaling Law for the Cone Mode Viscosity; 6.5 Simple Solutions of the Director Equation of Motion; 6.6 Electrooptic Measurements; 6.7 Optical Anisotropy and Biaxiality; 6.8 The Effects of Dielectric Biaxiality; 6.9 The Viscosity of the Rotational Modes in the Smectic C Phase; 7 Dielectric Spectroscopy To Find the  $\gamma^A$  and  $e^A$  Tensor Components; 7.1 Viscosities of Rotational Modes; 7.2 The Viscosity of the collective Modes; 7.3 The Viscosity of the Noncollective Modes; 7.4 The Viscosity  $\gamma^0$  from Electrooptic Measurements; 7.5 The Dielectric Permittivity Tensor; 7.6 The Case of Helical Smectic C\* Structures; 7.7 Three Sample Geometries; 7.8 Tilted Smectic Layers

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## Sommario/riassunto

The study of ferroelectricity is a branch of solid state physics which has shown rapid growth during the recent years. Ferroelectric materials exhibit unusual electric properties which make them useful in modern (opto)electronic technology, esp. display technology. Ferroelectric and antiferroelectric liquid crystals, including also various polymer forms, are the hottest research topic today in liquid crystals. The field is at the very beginning of industrial exploitation - a sensitive phase in which a good reference work is needed and will have a broad spectrum of readers both at universiti

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