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Transform; 2.3 Nonlocal Spatial Solitons in Nematic Liquid Crystals; 2.3.1 Voltage-Controllable Characteristic Length of NLC 2.3.2 Nematicons as Strongly Nonlocal Spatial Solitons 2.3.3 Nematicon-Nematicon Interactions; 2.4 Conclusion; Appendix 2.A: Proof of the Equivalence of the Snyder-Mitchell Model (Eq. 2.16) and the Strongly Nonlocal Model (Eq. 2.11); Appendix 2.B: Perturbative Solution for a Single Soliton of the NNLSE (Eq. 2.4) in NLC; References; Chapter 3. Theoretical Approaches to Nonlinear Wave Evolution in Higher Dimensions; 3.1 Simple Example of Multiple Scales Analysis; 3.2 Survey of Perturbation Methods for Solitary Waves; 3.3 Linearized Perturbation Theory for Nonlinear Schrodinger Equation 3.4 Modulation Theory: Nonlinear Schrodinger Equation 3.5 Radiation Loss; 3.6 Solitary Waves in Nematic Liquid Crystals: Nematicons; 3.7 Radiation Loss for The Nematicon Equations; 3.8 Choice of Trial Function; 3.9 Conclusions; Appendix 3.A: Integrals; Appendix 3.B: Shelf Radius; References; Chapter 4. Soliton Families in Strongly Nonlocal Media; 4.1 Introduction; 4.2 Mathematical Models; 4.2.1 General; 4.2.2 Nonlocality Through Response Function; 4.3 Soliton Families in Strongly Nonlocal Nonlinear Media; 4.3.1 One-Dimensional Hermite-Gaussian Spatial Solitons 4.3.2 Two-Dimensional Laguerre-Gaussian Soliton Families 4.3.3 Accessible Solitons in the General Model of Beam Propagation in NLC; 4.3.4 Two-Dimensional Self-Similar Hermite-Gaussian Spatial Solitons; 4.3.5 Two-Dimensional Whittaker Solitons; 4.4 Conclusions; References; Chapter 5. External Control of Nematicon Paths; 5.1 Introduction; 5.2 Basic Equations; 5.3 Nematicon Control with External Light Beams; 5.3.1 Interaction with Circular Spots; 5.3.2 Dielectric Interfaces; 5.3.3 Comments; 5.4 Voltage Control of Nematicon Walk-Off; 5.4.1 Out-of-Plane Steering of Nematicons 5.4.2 In-Plane Steering of Nematicon

Sommario/riassunto

The first book of its kind to introduce the fundamentals, basic features and models, potential applications and novel phenomena and its important applications in liquid crystal technology. Recognized leader in the field Gaetano Assanto outlines the peculiar characteristics of nematicons and the promise they have for the future growth of this captivating new field.
