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Density Matrix Calculation of the Third-Order Susceptibility; 3.8. Local-Field Corrections to the Nonlinear Optical Susceptibility; 4. The Intensity-Dependent Refractive Index
4.1. Descriptions of the Intensity-Dependent Refractive Index
4.2. Tensor Nature of the Third-Order Susceptibility; 4.3. Nonresonant Electronic Nonlinearities; 4.4. Nonlinearities Due to Molecular Orientation; 4.5. Thermal Nonlinear Optical Effects; 4.6. Semiconductor Nonlinearities; 5. Molecular Origin of the Nonlinear Optical Response; 5.1. Nonlinear Susceptibilities Calculated Using Time-Independent Perturbation Theory; 5.2. Semiempirical Models of the Nonlinear Optical Susceptibility; 5.3. Nonlinear Optical Properties of Conjugated Polymers
5.4. Bond-Charge Model of Nonlinear Optical Properties
5.5. Nonlinear Optics of Chiral Media; 5.6. Nonlinear Optics of Liquid Crystals; 6. Nonlinear Optics in the Two-Level Approximation; 6.1. Introduction; 6.2. Density Matrix Equations of Motion for a Two-Level Atom; 6.3. Steady-State Response of a Two-Level Atom to a Monochromatic Field; 6.4. Optical Bloch Equations; 6.5. Rabi Oscillations and Dressed Atomic States; 6.6. Optical Wave Mixing in Two-Level Systems; 7. Processes Resulting from the Intensity-Dependent Refractive Index; 7.1. Self-Focusing of Light and Other Self-Action Effects
7.2. Optical Phase Conjugation

Sommario/riassunto

The Optical Society of America (OSA) and SPIE - The International Society for Optical Engineering have awarded Robert Boyd with an honorable mention for the Joseph W. Goodman Book Writing Award for his work on Nonlinear Optics, 2nd edition. Nonlinear optics is essentially the study of the interaction of strong laser light with matter. It lies at the basis of the field of photonics, the use of light fields to control other light fields and to perform logical operations. Some of the topics of this book include the fundamentals and applications of optical systems based on the nonl
