SOLID-STATE PHYSICS

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Infrared Ellipsometry on Semiconductor Layer Structures

The study of semiconductor-layer structures using infrared ellipsometry is a rapidly growing field within optical spectroscopy. This book offers basic insights into the concepts of phonons, plasmons and polaritons, and the infrared dielectric function of semiconductors in layered structures. It describes how strain, composition, and the state of the atomic order within complex layer structures of multinary alloys can be determined from an infrared ellipsometry examination. Special emphasis is given to free-charge-carrier properties, and magneto-optical effects. A broad range of experimental examples are described, including multinary alloys of zincblende and wurtzite structure semiconductor materials, and future applications such as organic layer structures and highly correlated electron systems are proposed.

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