DESCRIPTION

The first in-depth treatment of the synthesis, processing, and characterization of nanomaterials using lasers, ranging from fundamentals to the latest research results, this handy reference is divided into two main sections. After introducing the concepts of lasers, nanomaterials, nanoarchitectures and laser-material interactions in the first three chapters, the book goes on to discuss the synthesis of various nanomaterials in vacuum, gas and liquids. The second half discusses various nanomaterial characterization techniques involving lasers, from Raman and photoluminescence spectroscopies to light dynamic scattering, laser spectroscopy and such unusual techniques as laser photo acoustic, fluorescence correlation spectroscopy, ultrafast dynamics and laser-induced thermal pulses.

The specialist authors adopt a practical approach throughout, with an emphasis on experiments, set-up, and results. Each chapter begins with an introduction and is uniform in covering the basic approaches, experimental setups, and dependencies of the particular method on different parameters, providing sufficient theory and modeling to understand the principles behind the techniques.
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