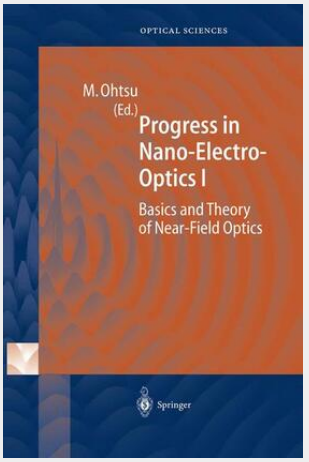
Ohtsu

Progress in Nano-Electro-Optics I

Basics and Theory of Near-Field Optics



This volume focuses on fundamental aspects of nano-electro-optics. Starting with fiber probes and related devices for generating and detecting the optical near-field with high efficiency and resolution, the next chapter addresses the modulation of an electron beam by optical near-fields. Further topics include: fluorescence spectroscopy, in which sample molecules are excited by the evanescent surface plasmon field close to metallic surfaces; spatially resolved near-field photoluminescence spectroscopy of semiconductor quantum dots, which will become an essential issue in future electro-optical devices and systems; and, finally, the quantum theory of the optical near-field. This latter theory accounts for all the essential features of the interaction between optical near-fields and nanomaterials, atoms and molecules. Together these overviews will be a valuable resource for engineers and scientists working in the field of nano-electro-optics.

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