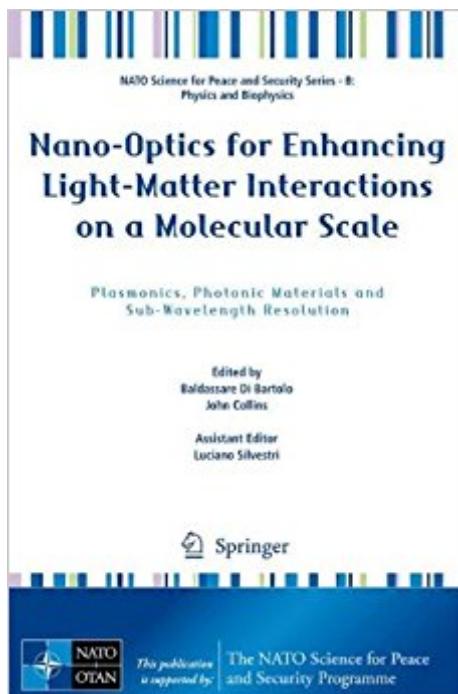


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# **Nano-Optics For Enhancing Light-Matter Interactions On A Molecular Scale: Plasmonics, Photonic Materials And Sub-Wavelength Resolution (NATO Science ... Security Series B: Physics And Biophysics)**



## **Synopsis**

This volume presents a considerable number of interrelated contributions dealing with the new scientific ability to shape and control matter and electromagnetic fields on a sub-wavelength scale. The topics range from the fundamental ones, such as photonic metamaterials, plasmonics and sub-wavelength resolution to the more applicative, such as detection of single molecules, tomography on a micro-chip, fluorescence spectroscopy of biological systems, coherent control of biomolecules, biosensing of single proteins, terahertz spectroscopy of nanoparticles, rare earth ion-doped nanoparticles, random lasing, and nanocoax array architecture. The various subjects bridge over the disciplines of physics, biology and chemistry, making this volume of interest to people working in these fields. The emphasis is on the principles behind each technique and on examining the full potential of each technique. The contributions that appear in this volume were presented at a NATO Advanced Study Institute that was held in Erice, Italy,  $\ddot{A}$  3-18 July, 2011. The pedagogical aspect of the Institute is reflected in the topics presented in this volume.

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