1. Record Nr. UNINA9910571744503321

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Titolo	Sub-Wavelength Probing and Modification of Complex Photonic Structures / / Silvia Vignolini
Pubbl/distr/stampa	Firenze, Italy : , : Firenze University Press, , [2010] ©2010
Descrizione fisica	1 online resource (90 pages) : illustrations
Collana	Premio Tesi di Dottorato
Disciplina	535.2
Soggetti	Nonlinear optics Photonic crystals
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Sommario/riassunto	The aim of this thesis consists in the study and modification of complex photonic nano-structures. Nowadays, propagation of light in such materials is a rich and fascinating area of research, both for its fundamental implications and for its practical technological impact. To deeply investigate light propagation inside these structures a high spatial resolution technique is required, especially because intriguing effects often occur on length scales comparable with the diffraction-limit or involve coupling phenomena on this length scale. For this reason in this thesis a Scanning Near-Field Optical Microscope represents one the most straightforward tool both to study and locally modify complex photonic nano-structures from perfect periodic to completely random ones.