1. Record Nr. UNINA9910813961603321 Autore Fritzsche Wolfgang **Titolo** Molecular plasmonics / / Wolfgang Fritzsche and Marc Lamy de la Chapelle Pubbl/distr/stampa Weinheim, Germany:,: Wiley-VCH,, 2014 ©2014 **ISBN** 3-527-64970-0 3-527-64968-9 3-527-64971-9 Edizione [2nd ed.] Descrizione fisica 1 online resource (188 p.) Disciplina 615.6 Soggetti **Nanoparticles Photonics** Plasmons (Physics) Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di contenuto Molecular Plasmonics; Contents; Foreword; Chapter 1 Introduction; References: Chapter 2 Plasmonic Effects: 2.1 Electrical Conductivity in Metal; 2.1.1 Drude Model; 2.1.2 Drude-Lorentz Model; 2.1.3 Drude-Sommerfeld Model: 2.2 Optical Properties and Dielectric Constant: 2.3 Plasmons; 2.4 Volume Plasmons; 2.5 Surface Plasmons and Applications in Life Sciences; 2.5.1 Surface Plasmons in a Flat Metallic Film; 2.5.2 Biosensor Applications; 2.6 Localized Surface Plasmon; 2.6.1 LSP in Spherical Nanoparticles; 2.6.2 LSP in Nanorods; 2.6.3 LSP in Other Shapes: 2.6.4 Influence of Environment on LSPR 2.6.5 Effects of Other Parameters on Resonance2.6.5.1 Composition: 2.6.5.2 Charge; 2.6.5.3 Neighboring Particles; 2.6.6 Field Enhancement, Damping, Dephasing Time, Line Width; 2.7 Combination of SPR and LSPR Approaches; 2.8 Nanoholes; 2.8.1 Nanoholes in Plasmonically Active Metal Films; 2.8.1.1 Arrays; 2.8.1.2 Single Holes; 2.8.2 Nanoholes in Other Materials; 2.9 Enhanced Spectroscopies; 2.9.1 Metal Enhanced Fluorescence; 2.9.2 Enhanced Raman Scattering; 2.9.2.1

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## Sommario/riassunto

Adopting a novel approach, this book provides a unique ""molecular perspective"" on plasmonics, concisely presenting the fundamentals and applications in a way suitable for beginners entering this hot field as well as for experienced researchers and practitioners. It begins by introducing readers to the optical effects that occur at the nanoscale and particularly their modification in the presence of biomolecules, followed by a concise yet thorough overview of the different methods for the actual fabrication of nano-optical materials. Further chapters address the relevant nano-optics, as well a