Molecular Plasmonics

By Wolfgang Fritzsche, Marc Lamy de la Chapelle





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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 nanooptical materials. Further chapters address the relevant nanooptics, as well as the various approaches to combining nanostructures and biomolecules to achieve certain desired functionalities for applications in the fields of probing, sensing and particle manipulation.

For analytical biologists, physical chemists, materials scientists and medicinal chemists.

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Editorial Review

From the Back Cover

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About the Author

Wolfgang Fritzsche heads the Nano Biophotonics Department at the Leibniz Institute of Photonic Technology (IPHT) in Jena, Germany, since 2001. He did his PhD at the Max-Planck-Institute for Biophysical Chemistry in G?ttingen, Germany and then worked as a postdoc at the Iowa State University, USA, on biological AFM and image processing before returning to Jena. His research interests are molecular plasmonics

and nanotechnology with a special focus on DNA-nanoparticle complexes and their integration into chip environments for bioanalytical

and nanophotonic applications. Wolfgang Fritzsche is the initiator and organizer of the bi-annual "Molecular Plasmonics" Symposia in Jena,

from the Society of Professional Hispanic Engineers.

Marc Lamy de la Chapelle is professor at the Paris 13 University at the Laboratory of Chemistry, Properties and Structure of the Biomaterials

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He got his PhD in science physics in 1998 at the University of Nantes on the study of carbon nanotubes by Raman spectroscopy. After two postdoc at the Office National d?Etude et de Recherche en A?ronautique in Paris and at the Tsinghua University in Beijing (China), he became associate professor at the Universit? de technologie de Troyes (UTT) in 2001. Since 2007, he is professor at the Paris 13 University. His research activities are focused on nanooptics and Raman spectroscopy. His research subject is the application of SERS and TERS to biological issues and more especially to the disease diagnosis.

He is head of the "spectroscopies of biomolecules and biological media" research team and he is director of the CNRS national research network on the Molecular Plasmonics and Enhanced Spectroscopies.

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