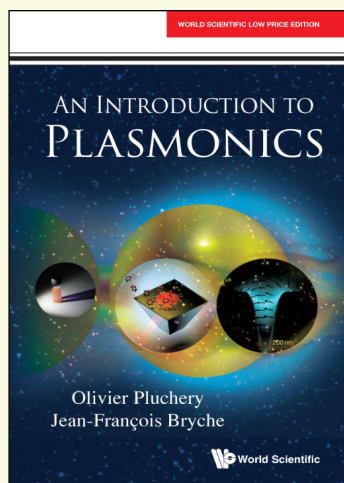


An Introduction to Plasmonics



By **Olivier Pluchery**
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(CNRS, France & Sherbrooke University, Canada)

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ABOUT THE BOOK

What is a plasmon? Is it a particle, like a photon or a wave? Plasmonics stands at the frontier of condensed matter physics, which is the world of electrons, optics and of photons. Plasmonics is one of the most active fields in nanophotonics. This book begins by exploring the concepts behind waves, and the electromagnetic description of light when it interacts with metals; it dedicates every chapter thereafter to all aspects of plasmonics. In particular, the surface plasmon polariton wave is explained in full detail, as well as the localized surface plasmon resonance of metallic nanoparticles. The active research area opened by plasmonics, as well as its applications, are also briefly explained, such as advanced biosensing, subwavelength waveguiding, quantum plasmonics, nanoparticle-based cancer therapies, optical nano-antenna and high-efficiency photovoltaic cells.

The book is adapted for graduate students and places a special emphasis on providing complete explanations of the fundamental concepts of plasmonics. Further, each of these concepts is illustrated with examples drawn from the most recent scientific literature. Each chapter ends with a set of exercises that will help the reader revise the concepts and go deeper into the world of plasmonics. More than 70 exercises are included.

READERSHIP

The book is intended for academia: university, college and engineering schools. Specially suited for graduate students in physics, materials science or chemistry. Also useful for PhD students and researchers entering the field of plasmonics as well as undergraduate courses in physics and electromagnetism.

CONTENTS

- Preface
- About the Authors
- Introduction
- Key Concepts of Electromagnetism for Plasmonics
- Optical Properties of Metals
- Wave Propagation at Interfaces

- Surface Plasmon Polaritons at Planar Interfaces
- Propagative Plasmonics for Biosensing
- Propagative Plasmons in Waveguides
- Fundamentals of Localized Plasmon in Nanospheres
- Localized Plasmon Resonance of Complex Nanostructures
- LSPR for Nano-optics and Biomedical Applications
- Future Applications of Plasmonics
- Index

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