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Titolo	Surface Plasmon Resonance Sensors : A Materials Guide to Design and Optimization / / by Leiva Casemiro Oliveira, Antonio Marcus Nogueira Lima, Carsten Thirstrup, Helmut Franz Neff
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Soggetti	Surfaces (Physics) Interfaces (Physical sciences) Thin films Optical materials Electronic materials Lasers Photonics Materials—Surfaces Surface and Interface Science, Thin Films Optical and Electronic Materials Optics, Lasers, Photonics, Optical Devices Surfaces and Interfaces, Thin Films
Lingua di pubblicazione	Inglese
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction and background information -- Physical features of the surface plasmon polariton -- Physical features of surface plasmon resonance sensors -- Design features of surface plasmon resonance sensors -- Data extraction algorithms -- SPF-sensor properties of metal films and particles: free electron type metals -- Classical noble metals -- Noble transition metals of the platinum group -- Common transition metals -- Other common metals -- SPR active metal-type compounds -- Artificial metal-insulator multi-layer structures -- Conclusions.

Sommario/riassunto	This book addresses the important physical phenomenon of Surface Plasmon Resonance or Surface Plasmon Polaritons in thin metal films, a phenomenon which is exploited in the design of a large variety of physico-chemical optical sensors. In this treatment, crucial materials aspects for design and optimization of SPR sensors are investigated and outlined in detail. The text covers the selection of nanometer thin metal films, ranging from free-electron to the platinum type conductors, along with their combination with a large variety of dielectric substrate materials, and associated individual layer and opto-geometric arrangements. Furthermore, as-yet hardly explored SPR features of selected metal–metal and metal–dielectric super lattices are included in this report. An in-depth multilayer Fresnel evaluation provides the mathematical tool for this optical analysis, which otherwise relies solely on experimentally determined electro-optical materials parameters.