3-D Composite Metallodielectric Nanoresonant Array Fabrication With Enhanced Sensing Abilities

Tech ID: 19890 / UC Case 2009-261-0

TECHNOLOGY DESCRIPTION

The subject invention details a new surface plasmon-based sensing chip for array-based detection sensors for environmental monitoring; explosive detection; protein-protein interaction for genomics, pharmaceuticals, proteomics, disease discovery, and drug development; and physical parameter detection and monitoring, such as temperature, pressure, and surface deposition thickness

ADVANTAGES

- Synergetic combination of two surface plasmonic resonances, propagating surface plasmon polariton (SPP) waves and localized surface plasmon resonant (LSPR) modes.
- Effective excitations and couplings of SPPs and LSPRs achieved by exciting SPPs, which propagate along the metallic surface, and couplings to LSPRs supported by the nanoresonant structures.
- Nanoresonant structures are built over hole-array structures by depositing a controlled layer of metal at an oblique angle onto deeply perforated polymer film to realize controlled void diameter for excitation of LSPRs, while SPPs are excited by the periodic structure via the wave vector matching condition.
- Achievement of enhanced sensing applications in physical parameter and bio-recognition reactions.

RELATED MATERIALS

A detailed overview of this invention is available at the following link.

http://www.opticsinfobase.org/DirectPDFAccess/4ABCCB9D-BDB9-137E-CF19BA23ACBB882B_181077.pdf?da=1&id=181077&seq=0

INTELLECTUAL PROPERTY INFORMATION

This work is available for commercial development.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,894,934	11/25/2014	2009-261
United States Of America	Issued Patent	8,514,398	08/20/2013	2009-261

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OTHER INFORMATION

CATEGORIZED AS

- **Nanotechnology**
  - Materials
- **Sensors & Instrumentation**
  - Biosensors
  - Environmental Sensors
  - Physical Measurement
  - Scientific/Research

RELATED CASES

2009-261-0

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