

Scientific report:

Nanoplasmonic Sensors and Spectroscopy conference, September 19-22, Chalmers University of Technology, Göteborg, Sweden

Conference main organizer: A. Dmitriev

The conference program contained 15 invited presentations of world-top level researchers in plasmonic sensing and spectroscopy and 33 contributed (peer-reviewed) oral presentations. In addition, about 50 poster presentations were featured during a dedicated poster session.

General focus of the conference was on the use of localized plasmon resonances for various sensing modalities, applied in bio- and materials science, and on plasmon-enhanced spectroscopies (like SERS, SEIRA and others).

In particular, the following subjects were discussed in connection to the invited and contributed oral presentations:

- Affinity biosensors based on spectroscopy of surface plasmons: technology and applications
- Anomalous Dispersion of Nanoplasmonic Guided Modes for Enhanced Biosensing
- Collective Plasmon Resonances in Metal Nanoparticle Arrays with Quadrupole Coupling and their Sensing Properties
- Switchable nanomaterials for sensing and materials science. A synthetic polypeptide approach
- Spectral and temporal distribution of adsorbate molecules by dynamic Raman nanospectroscopy
- Two decades of commercial SPR instruments in perspective and heading for the future
- Spectroscopy and Sensing at the Single Molecule and Single Nanoparticle Level
- High-Throughput Fabrication of Metallic Nanostructures for Plasmonic Biosensing and Imaging
- Coherent and broadband plasmonic nanocavities
- Frontiers in Biologically-oriented nanosensing and nanoactuation
- Single Particle Correlated LSPR/HRTEM Studies: Making Leaps Towards Fundamental Understanding of Structure-Function Relationships in Plasmonic Nanoparticles
- Directivity Enhanced Raman Scattering using Waveguide and Parabolic - - - Optical Nanoantennas
- Optical Enhancement of Photosensitizers using Supported Metal Clusters
- Axicon Based Plasmonic Nanosensors
- Optical Antennas for Enhanced Light-Matter Interactions
- Enhanced Emission and Light Control with Plasmonic Yagi-Uda-like Nanoantennas
- A bimetallic nanoantenna for directional colour routing

- The ultimate limit of label-free optical detection
- Boosting the Figure of Merit of LSPR based refractive index sensing by phase sensitive measurements
- Improved refractive index sensitivity of suspended gold nanoholes
- Plasmonic Metamaterials for Sensing
- Plasmonic modes of gold nano-particle arrays on thin gold films
- A two step method for large area fabrication of leaning nanopillars forming hot spots for surface enhanced Raman spectroscopy
- Localized Surface Plasmon Resonance (LSPR) Spectroscopy as a Tool For Studying Metal Deposition on the Nanoscale
- Towards an integrated plasmonic analytical platform for early cancer detection
- Lipid binding characteristics of neurotherapeutic antibodies studied with nanohole surface plasmon resonance
- Enhanced Emission of Four-Wave Mixing Signals from Nanoholes Investigated by Nonlinear microscopy
- Colloidal Lithography for Near-Field Spectroscopy and the Near - Field Photo - Chemical Fabrication of Chemical Nanostructures
- Plasmon-based interferometric logic and plasmon-assisted chemical reactions
- Molecular spectroscopic detection using large area surface enhanced Raman scattering substrate
- Surface Enhanced Raman Scattering from Periodic Nano-arrays
- Quantitative Chemical Imaging of Complex Biological Systems using Plasmonic Optics
- Optical antenna and hot spot response in surface enhanced Raman scattering (SERS) from silver-dressed, vertically aligned carbon nanotubes
- Vibrational Response of Gold Nanorods: Palladium Coating Effect
- Plasmonics: From Biosensing and Quantum Effects to Fano Interference and Light Harvesting
- Simulation of the response of the optical sensor on localized plasmons with the account of interparticle interactions.
- Optical Antennas for Mapping Protein Distributions
- Hybridized plasmon resonances in structures with atomic scale gaps
- Close encounters between Nanoantennas: Bridging Quantum and Classical Plasmonics
- Fabrication of Large-Scale Nanoparticle Arrays for Sensing Applications
- Metallic nanostructures for plasmon-enhanced Raman spectroscopy
- Fluorescence enhancement by co-aggregation of dye-labeled DNA and silver nanoparticles
- Sensing reactive oxygen species in stressed micro-organisms using plasmon resonant energy transfer

- Super-resolution axial sensitivity in plasmonic fluorescence cellular assays of protein internalization
- Plasmonic Monitoring of Electrochemical Processes
- Higher Order Plasmon Modes in Randomly Ordered Nanoparticle Ensembles - Characterization and Sensitivity Enhancement
- Nanoplasmonic Holes for Biosensing – Exploring Unique Possibilities
- Enhanced Transmission of gold membranes at Infrared Wavelengths for chemical sensing