

IEEE

PHOTONICS TECHNOLOGY LETTERS

A PUBLICATION OF THE IEEE PHOTONICS SOCIETY



This Print Collection Contains the Following Issues:

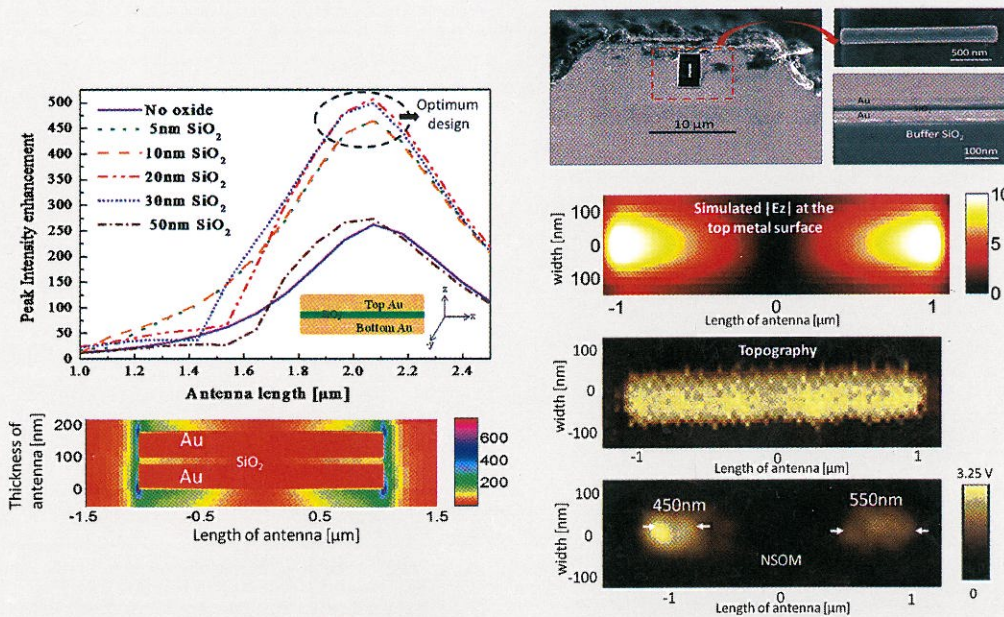
NOVEMBER 1, 2010
NOVEMBER 15, 2010
DECEMBER 1, 2010
DECEMBER 15, 2010

VOLUME 22
VOLUME 22
VOLUME 22
VOLUME 22

NUMBER 21
NUMBER 22
NUMBER 23
NUMBER 24

IPTLEL

(ISSN 1041-1135)



A novel plasmonic nano-antenna has been designed and fabricated based on an Au-SiO₂-Au single nanorod integrated on the facet of a quantum cascade laser, as seen in "Composite Nano-Antenna Integrated With Quantum Cascade Laser," by D. Dey, *et al.*, p. 1580. Simulation study showed that the peak optical intensity at the top of the antenna ends is 500 times greater than the incident field intensity. Midinfrared near-field optical microscopy showed that the fabricated device can generate a spatially confined spot within a size about 12 times smaller than the operating wavelength. Exploiting optical nano-antennas to boost the near-field confinement within a small volume can increase the limit of molecular detection by an order of magnitude. By utilizing such high intensity and hot spot locations that can lead to increasing photon interaction with bio-molecules, the integrated plasmonic laser antenna can be used in making sensitive bio-sensors.

For the November 1, 2010 issue, see p. 1545 for Table of Contents
For the November 15, 2010 issue, see p. 1627 for Table of Contents
For the December 1, 2010 issue, see p. 1703 for Table of Contents
For the December 15, 2010 issue, see p. 1773 for Table of Contents