Technology Innovation Announcement

UNIVERSITY OF NOTRE DAME
OFFICE OF TECHNOLOGY TRANSFER

Raman Spectroscopy

Surface Enhanced Raman Spectroscopy Substrate

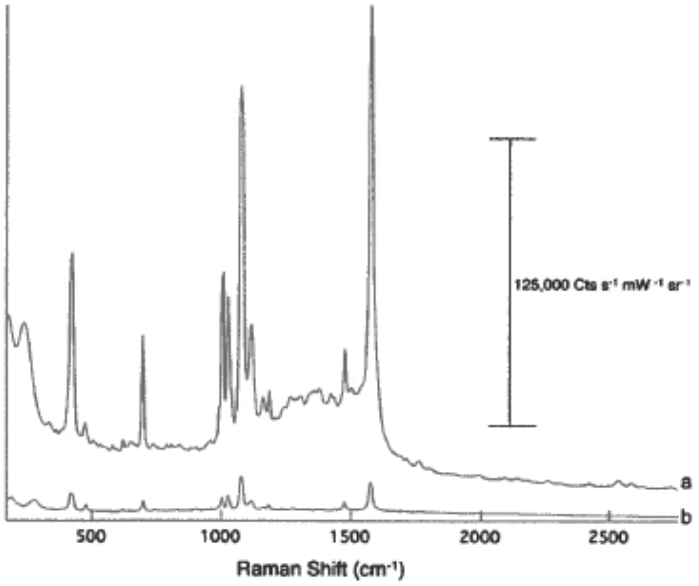
Background

Enhanced Raman spectroscopy results can be achieved by use of an improved substrate. This invention is directed to the fabrication and use of a metal film for SERS (surface enhanced Raman spectroscopy). Gold surfaces prepared with this method produce signals 10x better than the industry leading surface. Silver surfaces the improvement is 100x to 1000x than the current technology. The improvement in signal performance is due to the surface production method which increases the "hotspot" density, which in turn produce a signal resonance when interigated by specific laser frequencies therby increasing the chance for an analyte detection.

Technology

A template process is used to produce a Raman surface with nanoscaled structures capable of producing a localized surface Plasmon resonance. The high density of these regions increases the chance of an analyte interacting with one of these areas.

The electric field present on the surface of the Raman substrate is greatly increased due to the coupling of the nanostructures which is dependent on their dielectric and size/shape properties. The structures formed by this technology produce an electromagnetic enhancement which is in resonance with the LSPR.



Advantage

- The SERS substrate described here provides coupled nanostructures resulting in enhanced signals and better analyte detection capabilities

University of Notre Dame
940 Grace Hall
Notre Dame, IN 46556
ott@nd.edu

Contact

Office of Technology Transfer
Tim Joyce, Licensing Associate
(574) 631-3029 | joyce.17@nd.edu
Web: ott.nd.edu

12-040 SERS Substrate

this technologies made possible by the efforts of students, researchers and faculty at . . .

UNIVERSITY of NOTRE DAME
Department of Chemistry and Biochemistry

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Contact the Office or Technology Transfer
940 Grace Hall
Notre Dame, IN 46556

P: 574-631-4551 | E: ott@nd.edu | W: ott.nd.edu