Nanoplasmonics and surface enhanced spectroscopy

Shape-Controlled Synthesis of Gold Nanostructures in Pores of a SiO_2 Template

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By means of the template synthesis method, gold nanostructures with different morphologies have been produced in the pores of a SiO_2 template on single-crystal silicon substrate [1]. Formation mechanism of nanostructures with different shape such as dendrite- and sunflower-like nanostructures has been established. Using the aqueous solution of the Rhodamine 6G dye spatially separated gold structures have been investigated for the efficiency of enhanced Raman scattering. Key parameters affecting on the enhancement factor of Au nanostructures were discussed.

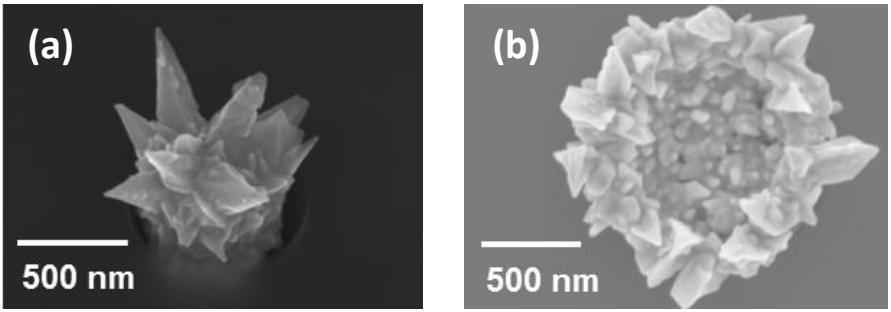

Fig. Scanning electron microscopy micrographs of self–organized gold nanostructures grown in porous Si/SiO_2 matrix: dendrite-like (a) and «sunflower»-like nanostructures

1. *Kaniukov, E.Y., Ustarroz, J., Yakimchuk, D.V. et al.* Nanoporous Silicon Oxide Templates by Swift Heavy Ion Tracks Technology // Nanotechnology.-2016.-**27**, P.115305.