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TITLE

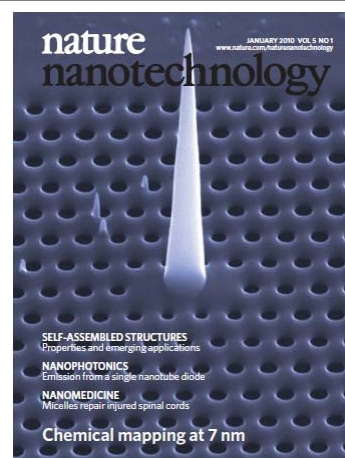
Hollow nanostructures

INVENTORS

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DESCRIPTION

This patent describes a new technique to produce hollow nanostructures made of noble metal and dielectrics. The nanostructures stand on a thin silicon nitride membrane or other kind membrane, and their shape can be adjusted accordingly to the specific needs. They can be conical, pyramidal, cylindrical, and they can be arranged in arrays of the desired geometry. The width can span from few tenths of nm to few hundreds, whereas the height can be up to few microns. The aspect ratio (width/height) can be up to 40:1. Also coaxial structures made of more layers of different materials can be done. The fabrication technique is mainly based on focused ion beam milling.



APPLICATIONS

These nanostructures can be applied in the field of Photonics (plasmonic and photonics antennas, waveguide, plasmonic nanolenses and tips, nanolasers, spasers, metamaterials), and in the field of catalysis of photochemical reactions mediated by noble metals and plasmons.

KEYWORDS

hollow nanostructures, photonics, plasmonics, nano-antenna, nano-laser, nano-lens, spaser, metamaterials, catalysis.

BIBLIOGRAPHIC DATA TO2011A000066

Procedimento di realizzazione di nano-strutture cave

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