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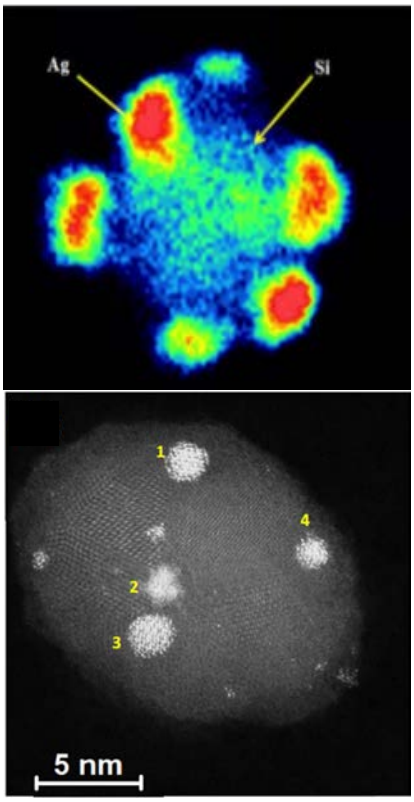
Nanocrystallization of amorphous silicon quantum dots

The Problem

The crystallinity of a nanoparticle has a profound effect on its optical, electronic and chemical properties. Being able to control these properties is particularly important for advanced applications.



TEM images showing Ag nanoclusters and Si nanoparticle.

The Solution

This technology makes it possible to control the number of metallic nanoclusters decorating a metalloid nanoparticle. The nanoclusters induce localized crystallization of the metalloid quantum dot.

Applications

- Hydrogen storage
- Multimodal bio-imaging
- Optoelectronic devices
- Biosensors

Benefits

- Applicable to Al, Au, Ni, Pd, Cu
- Applicable to Si, Ge, SiGe QDs
- Number of nanoclusters controllable
- Metallic nanoclusters can be removed

Keywords

Quantum dot, nano-crystallinity, metal induced crystallization, property engineering

Patent protection

This technology is protected by a PCT patent application. Expressions of interest in commercialization are welcomed.

For more information

Business Development Section/Technology Licensing Section
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