

14-2018-4648 | Colloidal Semiconductor Nanorods

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Background

- Nanocrystals can be used as a building blocks of nano-devices in diverse applications such as solid- state lighting, flat panel displays, solar energy conversion, opto-electronic devices and biomedical applications.
- Colloidal semiconductor nanocrystals are a class of nanomaterials that manifest the transition from the molecular limit to the solid state.

Our innovation

A new architecture for colloidal semiconductor nanostructures (specific compositions), based on known semiconductor crystal growth mechanisms.

Technology

- Fabrication of heavy-metal free semiconductor nanocrystal heterostructures was demonstrated.
- It was shown that lattice mismatch between the different materials can impact useful chemical catalytic properties
- The formation of island morphology is critical for the technological beneficial properties of this system

Highlights

- Photocatalytically stable
- General method which not limited to one specific technology use
- Heavy-metal free quantum dots and quantum materials
- Potentially effective in areas related to photochemistry, energy systems and phototherapy
- The architecture could be used as a photoinitiator for UV curing systems

Patent Status

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