

Heterogeneous Core@shell Photocatalyst

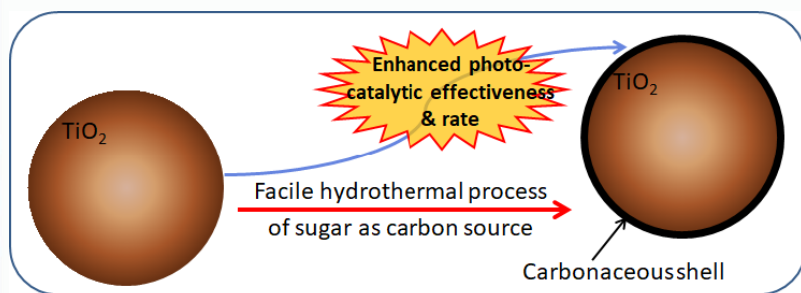
This invention removes contaminants and microorganisms from polluted water using affordable nanotechnology to resolve the low decontamination effectiveness of current options

Problem

Current photocatalysts are prepared by time-consuming, tedious and not-cost effective processes. They also may show high decontamination effectiveness but slow decontamination rate.

Solution

This invention addresses a method of developing transition metal oxide (or sulfide) based nanostructured photocatalysts that enhances both decontamination effectiveness and rate. Additionally, the photocatalysts are remarkably cost-effective and reusable.



Competitive Advantages

- Both TiO_2 and sugar are cheap source materials
- The shell coating process on TiO_2 core is facile and low-cost
- No high temperature annealing under inert atmosphere is needed to convert the carbon source into carbon-based adsorbent.
- The decontamination process can be conducted at room temperature and atmospheric pressure
- The resulting nanostructured heterogeneous core@shell photocatalysts show surprisingly high decontamination efficiency (~100%) and rapid decontamination rate (< 30 min).

IP Status

- Patent # US20180280934
- Licensing available

Status of Development

- Prototyping stage