A method to develop high upconversion (UC) efficiency luminescent

Competitive Advantages

- High UC efficiency particle
- Simple and cost effective synthesis for industrial production

Commercial Applications

- Solar energy conversion
- Photocatalytic processes
- Consumer optoelectronics
- Medical imaging and diagnostics
- Photo-refractive surgeries

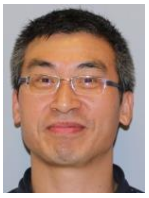
IP Status

- Patent pending
- Licensing available

Status of Development

- Prototyping stage

Lead Inventor



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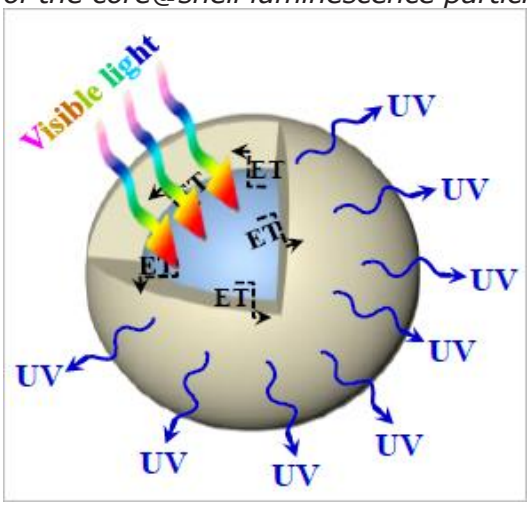
The potential benefits of ultra-violet (UV) light, such as cancerous cell treatment, water disinfection and sterilization, small animal optical imaging, photo-refractive surgeries, etc. are well known. However, sunlight reaching earth's surface, as the source, contains only 3 percent of UV light, while the rest contains infra-red (about 55 percent) and visible (about 43 percent) light. Unfortunately, the known methods to convert visible light to UV light using up-converting phosphors as luminescents is flawed by poor upconversion (UC) efficiency.

This invention provides a simple and cost-effective method of developing a new type of heterogeneous core@shell luminescence particles that possess high UC efficiency. Target users include firms requiring photocatalytic processes, solar energy conversion, consumer optoelectronics, medical imaging and diagnostics.

A schematic diagram on the energy transfer process of the core@shell luminescence particles



(image source: inventor)

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