

Docket #: S22-186

UV Light Emitting Micelles

Technology Summary

Stanford inventors have developed a system to generate UV light with good light depth penetration properties (across the cm scale). While many photochemical processes require UV activation, current systems to deploy UV emitting materials suffer from poor solubility or inefficient UV light generation. This invention addresses these issues by encapsulating UV emitting materials in a micelle to maintain high local concentration for efficient upconversion (UC). The micelle, 50 nm in diameter, is formed by a self-assembly of a polymer that encapsulate solubilized UC materials. The upconverted system allows for low energy light to pass beyond the surface such that high energy light, i.e. UV, can be locally generated. The micelle system may be generalized to other sensitizer materials for broader materials discovery and deployment applications.

Stage of Development

Prototype

Applications

- Biomedical imaging
- Optogenetics
- 3D printing
- Photochemistry

Advantages

- Enables local generation of UV light with good light depth penetration
- Enables high concentration of UC materials

Patents

- Published Application: [WO2023225680](#)

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