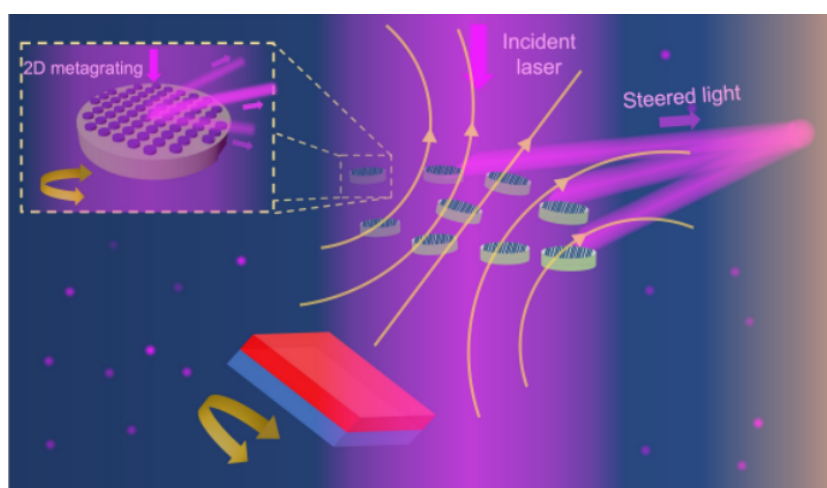




Steerable magneto-photonic particles for targeted delivery and collection of light

An embeddable magneto-photonic microparticle that can be externally positioned and orientated for targeted delivery and collection of light.



IP Status: Provisional Patent Application Filed.

Applications

- Noninvasive brain stimulation
- Near-field imaging
- Light-responsive drug delivery
- Targeted photothermal therapy

Technology Overview

Researchers at the University of Minnesota have developed an embeddable magneto-photonic microparticle that can be externally positioned and orientated for targeted delivery and collection of light. The composite particle combines an optically active surface that comprises an engineered pattern of subwavelength features with a magnetic core that facilitates controlled steering and movement of the particle. Current challenges of targeted light delivery and collection include the lack of directionality and selectivity for desired light properties, the inability to be controlled with a noninvasive mechanism, and the requirement for direct line of sight access to the target. This technology has ground-breaking potential for overcoming these challenges to achieve biomedical and imaging applications such as noninvasive brain stimulation, near-field imaging, light-responsive drug delivery, and targeted photothermal therapy.

Phase of Development

TRL: 4-5

Technology ID

2023-107

Category

Engineering & Physical Sciences/Materials
Engineering & Physical Sciences/MRI & Spectroscopy
Engineering & Physical Sciences/Nanotechnology
Engineering & Physical Sciences/Photonics
Life Sciences/Biomaterials
Life Sciences/Diagnostics & Imaging
Life Sciences/Human Health
Life Sciences/Medical Devices
Life Sciences/MRI & Spectroscopy
Life Sciences/Neuroscience
Life Sciences/Pharmaceuticals
Life Sciences/Research Tools
Life Sciences/Therapeutics

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Working prototype developed and characterized in the lab and tested in a model environment.

Desired Partnerships

This technology is now available for:

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- Co-development

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Researchers

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