

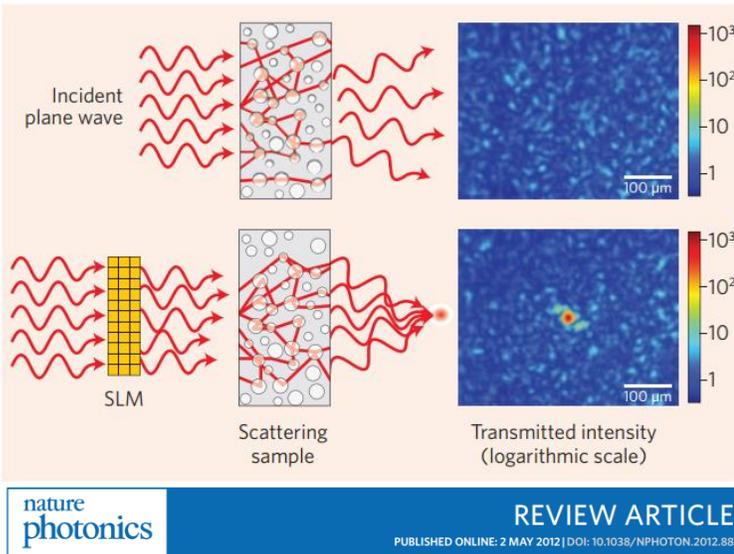
Motivation:

In complex media (e.g. white paint, biological tissue) light encounters nanoscale refractive-index inhomogeneities that cause multiple scattering and speckles.

Spatial light modulator, SLM

Using SLMs, the amplitude and phase of a reflected laser wave can be shaped nearly arbitrarily.

With SLMs it has become possible to image through strongly scattering or opaque media!



Questions to discuss

1. How can beam propagation through inhomogeneous media be described?
2. How can light be shaped by a spatial light modulator?
3. The concept of non-diffracting and self-reconstructing beams
4. The transmission and reflection matrix: Focusing through inhomogeneous media
5. The concept of Eigen channel transmission
6. Using the memory effect in highly scattering media
7. Spatiotemporal encoding and single pixel imaging

Controlling waves in space and time for imaging and focusing in complex media

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