

Extraordinary optical transmission revisited: how light gets through isolated or periodic arrays of subwavelength slits and holes (or not)

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The passage of light through apertures much smaller than the wavelength of the light has proved to be a surprisingly subtle phenomenon. This talk describes how modern developments in nanofabrication, coherent light sources and numerical vector field simulations have led to the upending of early predictions from scalar diffraction theory and classical electrodynamics. Optical response of real materials to incident coherent radiation at petahertz frequencies leads to unexpected consequences for transmission (and extinction) of light through subwavelength aperture arrays.