

"Transformation optics: a universal design tool"

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Resumen

Our intuitive understanding of light has its foundation in the ray approximation and is intimately connected with our vision: as far as our eyes are concerned light behaves like a stream of particles. Here we look inside the wavelength and show how the new concept of transformation optics that manipulates electric and magnetic field lines rather than rays can provide an equally intuitive understanding of subwavelength phenomena and at the same time be an exact description at the level of Maxwell's equations. Examples will be given of applications to plasmonic structures with dimensions of just a few nanometres: a tenth or even a hundredth of the wavelength of visible light, and at the other extreme to cloaking of static magnetic fields. In both instances the ray picture fails utterly.



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