Sir John Pendry

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Invisible cloaks and a perfect lens

Electromagnetism encompasses much of modern technology. Its influence rests on our ability to deploy materials that can control the component electric and magnetic fields. A new class of materials has created some extraordinary possibilities such as a negative refractive index, and lenses whose resolution is limited only by the precision with which we can manufacture them. Cloaks have been designed and built that hide objects within them, but remain completely invisible to external observers. The new materials, named metamaterials, have properties determined as much by their internal physical structure as by their chemical composition and the radical new properties to which they give access promise to transform our ability to control much of the electromagnetic spectrum.

BIO

Sir John Pendry as born in England. He has been working at the Blackett Laboratory, Imperial College London (UK) since 1981. He began his career in the Cavendish Laboratory at the University of Cambridge, followed by six years at the Daresbury Laboratory of the Science and Technology Facilities Council (UK), where he headed the theory group. In collaboration with the Marconi Company, he designed a series of completely novel artificial materials, or "metamaterials", with properties not found in nature. Successively metamaterials with negative electrical permittivity, then with negative magnetic permeability were designed and constructed. This project culminated in the proposal for a 'perfect lens' whose resolution is unlimited by wavelength. He is popularly known for his research into refractive indexes and creation of the first practical "Invisibility Cloak". John Pendry was head of the Physics Department at Imperial College London and principal of the Faculty of Physical Sciences. The long list of awards he has received includes, his post as Fellow of the Royal Society (1984), Honorary Fellow of Downing College at Cambridge University, the Dirac Medal of the Institute of Physics (1996), the Royal Medal of the Royal Society (2006), as well as being knighted for his services to science (2004).