London Optics Masterclass Series:

Transformation Optics

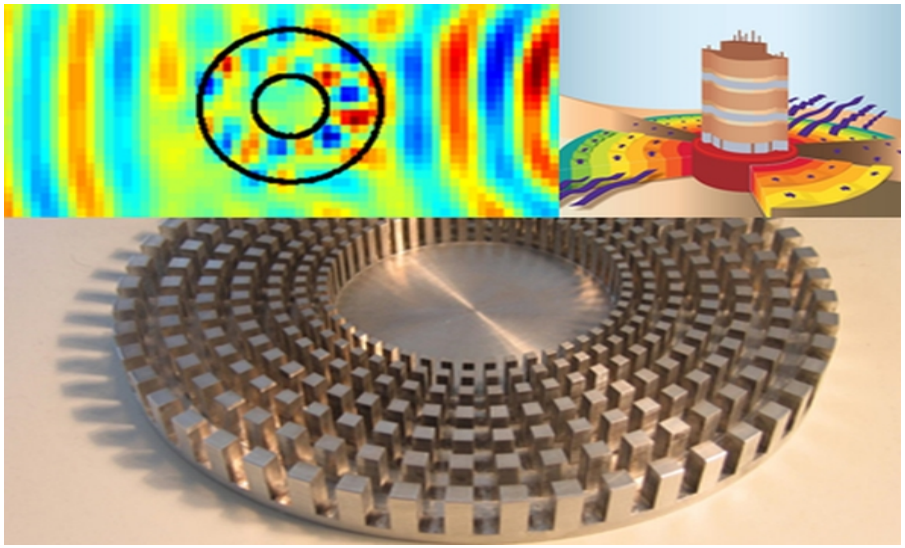
Snacks and drinks provided

Speaker: Dr. Sebastien Guenneau, Institut Fresnel, Aix-Marseille University.

Transformation Optics (TO) amounts to making a coordinate change in Maxwell's equations so as to obtain heterogeneous anisotropic materials allowing for a control of light rays, in a way similar to layers of air of different temperatures with a varying index of refraction curving light trajectories in mirages.

An alternation of concentric layers of varying refractive index according to TO makes invisibility cloaks possible, and the first prototype of microwave cloak was engineered and experimentally validated by Sir John Pendry and his colleagues at Duke University back in 2006. We will see that it should be possible to hide small scatterers outside an external cloak designed with negatively refracting layers, according to TO, and this has been experimentally validated for microwaves by our group at Institut Fresnel, in collaboration with Ross McPhedran at Sydney University.

The extension of TO to mechanical waves opens new vistas for application of invisibility to wave protection in maritime and civil engineering in the years ahead.



Location: Room 539, Blackett Laboratory

Time & Date: 4-5pm on Friday 8th February

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