Thursday, 21 February 2013
17:00 -18:00
3rd Floor Seminar Room

“Taming waves in theory and experiment”

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Abstract

I will speak about recent advances in shaping and controlling waves in cavities and random media [1]. In particular, I will show how the experimentally accessible information stored in a system's scattering matrix can be used to create highly collimated wave beams which traverse this system without being diffracted [2,3]. The key tool to realize such particle-like scattering states is the so-called time-delay operator which can be implemented with electromagnetic as well as with acoustic waves. In the second part of my talk I will explain how a suitably designed disorder can be used to control the coherent transmission through waveguides [4] as well as the emission properties of a so-called random laser [5].

[5] Hisch et al. (in preparation)