We show in microwave measurements and computer simulations that an individual mode can be preferentially excited by illuminating the sample with the wavefront corresponding to the singular vector of the transmission matrix of the mode. The selectivity can be further improved in pulse excitation by an exponentially rising pulse with a rise time equal to the decay rate of the mode and with a carrier frequency of the central frequency of the mode. We found that it is not possible to distinguish two spectrally overlapping modes with similar speckle patterns in excitation. The ability to excite individual modes provides some degree of control of energy deposition and absorption in disordered materials, which can be exploited to lower the threshold of lasing action in active random media.

**Bounded States in the Continuum: Chiral Lattices and Van Hove Singularities**

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We present two different mechanisms for the formation of bounded states in the continuum in lattices with Van Hove singularities and/or chiral symmetry connected to leads. Bounded states in the continuum are square integrable solutions of the time-independent Schrödinger equation with eigenenergies above the potential threshold. We derive some algebraic rules for the number of states that remain bounded depending on the dimensionality and rank of the system Hamiltonian including the coupling to the leads. We study the transport properties of some relevant physical examples and propose different experiments for measuring the consequences of the presence of these bounded states in the continuum.


**Multi-terminal Decoherent Quantum Transport: From Giant Magnetoresistance and SASERs to Dissipative Adiabatic Quantum Motors**

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Quantum conductance in nano and mesoscopic systems is often affected by decoherence, which in turn, becomes critical to obtain the semiclassical behavior. In spite of this, just a few works include these effects [1-3]. Here, we present a Green's functions based model which generalizes the previous work of