



Physics  
AT QUEENS COLLEGE

# Colloquium Notice

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*Generation of ray modes in random gap systems*

A spatially varying gap leads to the creation of edge states. These very robust states are associated with quantized currents, the foundation of the quantum Hall effect in electronic systems. Here we discuss a randomly distributed gap in photonic systems. Despite the presence of strong disorder, the behavior of photons is not characterized by conventional Anderson localization: Rather than confining the photons to an area of the size of the localization length, the random gap creates geometric states. This type of confinement can be understood as angular localization, where the photons of a local light source can propagate only along waveguides in certain directions. The directions are determined by the boundary of the spectrum. Thus, the system's properties on the shortest scales determine the behavior of the photon propagation on the largest scales.

Monday  
**August 15, 2016**  
Starts at 12:15 PM  
Coffee at 12:00 PM  
Physics Conference Room, SB B326