

Abstract Submitted  
for the MAR06 Meeting of  
The American Physical Society

**Statistical studies of the propagation of a signal through a disordered system** JOSHUA DACHMAN-SOLED, Department of Physics, Yeshiva University, GABRIEL CWILICH, Department of Physics, Yeshiva University — We have considered the propagation of a signal through a certain layered nanostructure by modeling it as a collection of random one-dimensional interfaces, through which a coherent wave can be transmitted or reflected while being scattered at each interface. We have previously used a simple model where a persistent random walk (the “t-r” model in 1-D) is used as a representation of the propagation of the signal in such a medium <sup>(1)</sup> We will present here some extensions of those results to analyze the total transmission through a chain when a random distribution of the transmittance of the scatterers is included. Some of the statistical properties of the system will be discussed, and some results of possible extensions to more than one dimension in the context of this model will be presented. (1) *Nanotechnology*, v13, 274 , (2002).

Gabriel Cwilich  
Department of Physics, Yeshiva University

Date submitted: 06 Dec 2005

Electronic form version 1.4