

Abstract Submitted  
for the MAR05 Meeting of  
The American Physical Society

**Density of States of Weakly Disordered Two-Dimensional Frenkel Excitons** NOUREDINE ZETILI<sup>1</sup>, Jacksonville State University, A. BOUKAHIL, Physics Department, University of Wisconsin-Whitewater, Whitewater, WI 53190 — The Coherent Potential Approximation (CPA) is used to study the optical properties of weakly disordered two-dimensional Frenkel exciton systems with nearest neighbor interactions. The transition frequencies are assumed to have Gaussian distribution. An approximate complex logarithmic Green's function for a square lattice with nearest neighbor interactions is used in the CPA self-consistent equation to determine the coherent potential. We show that the CPA results are in excellent agreement with previous numerical investigations.

<sup>1</sup>One of us (NZ) wishes to acknowledge the support of Jacksonville State University to this work through a Faculty Research Grant.

Nouredine Zetili  
Jacksonville State University

Date submitted: 12 Nov 2004

Electronic form version 1.4