**Exponential tails near the band edges of a one-dimensional disordered exciton system in the Coherent Potential Approximation** ABDELKRIM BOUKAHIL[1], Physics Department, University of Wisconsin-Whitewater, NOUREDINE ZETTILI, Deprtment of Physical and Earth Sciences, Jacksonville State University, 700 Pelham Road North, Jacksonville, AL 36265, USA, DAVID HUBER, Physics Department, University of Wisconsin-Madison, Madison, WI 53706, USA — We report the results of studies of the tails near the band edges of a one-dimensional Frenkel exciton system in the Coherent Potential Approximation (CPA). A Gaussian distribution of the transition frequencies with rms width $\sigma$ ($0.1 \leq \sigma \leq 2.0$) is used. We found that the tails obey two different exponential power laws depending on the value of $\sigma$. In the weak disorder limit $0.1 \leq \sigma < 0.5$, the tails of the absorption line shape and the density of states behave like $exp(-k|E|^{3/2}/\sigma^2)$, and in the strong disorder limit, $0.5 < \sigma \leq 2.0$, the tails behave like $exp(-|E|^2/\sigma^2)$. In the weak disorder limit, our CPA results are in excellent agreement with previous investigations.

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