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- **Auteurs:**

Khaled Senouci

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Résumé :

We investigate numerically the effect of non-linear interaction on conductance statistics in one dimensional disordered systems with γ peak potentials. It is shown that the non-linearity can either localize or delocalize the electronic states depending on its sign. For an attractive nonlinear interaction, we found that the mean conductance decays as $g \approx L^{-\gamma}$. The exponent is found to be sensitive to the kind of the potential. It seems to be independent of the strength of the non-linearity in the case of disordered barrier potentials, while it varies with this strength for well and mixed potentials. The conductance probability distribution shows a deviation from its log-normal form (linear case) when the nonlinearity is increased and the fluctuations of conductance decrease indicating the delocalization of the eigenstates.