ON LOCALIZATION IN RANDOM OSCILLATOR SYSTEMS

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We consider the effects of randomness on a large family of quantum oscillator systems. We first prove a strong form of dynamical localization, expressed in terms of a zero-velocity Lieb-Robinson type bound. Next, we prove clustering estimates, i.e. exponential decay of both ground state and thermal state correlations. Each of these results requires certain conditions on the randomness, however, they do apply to a number of gapless models.