

# **Title: Lieb-Robinson bounds and dynamical localization for the random xy-chain**

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Date: 01.07.2011

## Abstract:

Locality is an essential tool in analyzing various physical systems. For non-relativistic systems governed by a Hamiltonian dynamics, it is well-known that the time evolution does not generally preserve local structures, i.e., there is no strict equivalent to a finite speed of light. In 1972, Lieb and Robinson demonstrated that, in the context of quantum spin systems, the dynamics associated to short-range Hamiltonians has an approximate local structure. In particular, such systems have an associated finite group velocity. After discussing this result and recent generalizations, we will discuss a random xy-spin chain. For this model, we prove a result on dynamical localization expressed as a zero-velocity Lieb-Robinson bound. This is joint work with Eman Hamza and Gunter Stolz.

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