

## Speck of chaos

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It has been shown that, despite being local, a perturbation applied to a single site of the one-dimensional XXZ model is enough to bring this interacting integrable spin-1/2 system to the chaotic regime. Here, we show that this is not unique to this model, but happens also to the Ising model in a transverse field and to the spin-1 Lai-Sutherland chain. The larger the system is, the smaller the amplitude of the local perturbation for the onset of chaos. We focus on two indicators of chaos, the correlation hole, which is a dynamical tool, and the distribution of off-diagonal elements of local observables, which is used in the eigenstate thermalization hypothesis. Both methods avoid spectrum unfolding and can detect chaos even when the eigenvalues are not separated by symmetry sectors.

[1] Physical Review Research 2, 043034 (2020)