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Title: Arresting the dynamics of magnon bound state by relaxing kinetic constraint.

Abstract: Non-equilibrium dynamics of many-body quantum systems reveal interesting scenarios and have been the topic of intense research in recent years. However, such problems are often found to be challenging to address both theoretically and experimentally. In this context, the dynamics of few interacting particles or the quantum walk provides a bottom-up approach to understand many-particle dynamics and at the same time reveal novel phenomena which are completely different from their many-body counterparts. In this talk, we will discuss the dynamics of a magnon bound state or a bound states of two nearest neighbour spin excitation on a spin chain. We will show that the bound state exhibits slower dynamics compared to the individual spin excitations when only nearest neighbour hopping is allowed. While this is expected, we will show that the dynamics exhibits counter-intuitive features when the nearest-neighbour kinetic constraint is relaxed. We will discuss our findings obtained using both classical and quantum computing simulations.