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Discrete time crystal in a finite chain of Rydberg atoms without disorder (Q)

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We study the collective dynamics of a clean Floquet system of cold atoms, numerically simulating two distinct realistic set-ups based on a regular chain of interacting Rydberg atoms driven by laser fields. In both cases, the population evolution and its Fourier spectrum display clear signatures of a discrete time crystal (DTC), exhibiting the appearance of a robust subharmonic oscillation which persists on a time scale increasing with the chain size, within a certain range of control parameters. We also characterize how the DTC stability is limited by dissipative processes, which are typically present in the system.

Summary

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Classifica Sessioni: Talks on specific topics

Classificazione della track: Quantum Gases