Dynamical localization and delocalization in Floquet systems

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Localization aspects of a kicked noninteracting one-dimensional (1D) quantum system or a topological superconductor subject to either time-periodic or nonperiodic pulses are studied. The universality class of the transition from delocalized to localized regimes is studied. In the case of aperiodic kicks delocalization ultimately sets in and a diffusive spreading of an initial wave packet is obtained when the aperiodicity of the driving is introduced. In the case of Floquet topological superconductors one finds both Majorana and fermionic localized edge modes in the topological regime. In some intermediate period regime one can identify a region in phase diagram with a mobility edge between critical and localized states.