Dynamical preparation of Floquet Chern insulators: A no-go theorem and the experiments LUCA D'ALESSIO, MARCOS RIGOL, Pennsylvania State University — Recently, it has been proposed that time-periodic perturbations can induce topological properties in otherwise non-topological materials, opening the exciting possibility of studying non-equilibrium topological transitions. Here we address what should happen in an experiment when one turns on the periodic driving. On the one hand, for infinite (translationally invariant) systems we prove a no-go theorem. We show that the Chern number is conserved under unitary evolution, i.e., it is impossible to change the topological character of the initial wavefunction. On the other hand, for systems with boundaries, we show that the properly defined topological invariant, the Bott index, can change and it is possible to dynamically prepare a topological wavefunctions starting from a non-topological one.

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