

# **A universal model of Floquet operator Krylov Space**

Aditi Mitra, NYU

It is shown that the stroboscopic time-evolution under a Floquet unitary, in any spatial dimension, and of any Hermitian operator, can be mapped to an operator Krylov space which is identical to that generated by the edge operator of the non-interacting Floquet transverse-field Ising model (TFIM) in one-spatial dimension, and with inhomogeneous Ising and transverse field couplings. The latter has four topological phases reflected by the absence (topologically trivial) or presence (topologically non-trivial) of edge modes. It is shown that the Floquet dynamics share certain universal features characterized by how the Krylov parameters vary in the topological phase diagram of the Floquet TFIM with homogeneous couplings. Connections to methods based on orthogonal polynomials on the unit circle are discussed. Applications to slow dynamics of quasi-conserved quantities as well as Anderson localization and the localization-delocalization transition are presented.