Title: Projected Green's Functions in Quasi-Periodic Systems

Abstract: Projected Green's Functions (pGf), $G_{xx}(\omega)$, have long been used to describe the localization of quantum systems. More recently, pGf zeros have been used to determine physical observables of topological invariants in free-fermion systems, including topological obstructions to bulk localization and bulk-boundary correspondence. In this talk, I will discuss how these pGfs appear in transfer matrices and what their zeros can tell us about the solutions to transfer matrix equations – linking the localization and topological perspectives. Using these methods, we re-examine the almost-Matthieu operator and notice new guarantees on analytic regions of its resolvent.