SCGP Weekly Talk & Workshop Speaker: Tomaz Prosen

Tuesday, August 29 · 1:15 – 2:15pm

Location: SCGP 102

Title: Exactly Solvable Models of Quantum Many-Body Chaos

Speaker: Tomaz Prosen

Abstract: Focusing on quantum lattice systems with local interactions I will discuss the unreasonable effectiveness of random matrix theory for description of their spectral fluctuations. A class of locally interacting spin systems has been recently identified where the spectral form factor is proven to match with random matrix theory, and where spatiotemporal correlation functions of local observables as well as some measures of dynamical complexity can be calculated analytically. These, so-called dual unitary systems, include integrable, non-ergodic, ergodic, and generically, (maximally) chaotic cases. After reviewing the basic properties of dual unitary Floquet circuits, I will argue that dynamical correlation functions of these models are generally perturbatively stable with respect to breaking dual-unitarity, describe a simple result within this framework, and motivate some conjectures.