

Talk Felix Haehl: Random matrix universality and modular invariance

Monday 30 September 2024 11:30 (1 hour)

Random matrix universality and modular invariance

I will discuss universal level repulsion in the context of coarse-graining the spectrum of chaotic 2d conformal field theories. Modular invariance strongly constrains the spectral correlations and the subleading corrections to the linear growth of the spectral form factor (SFF). The latter are determined by a trace formula, which highlights an interplay of universal physical properties of chaotic CFTs and analytic number theory. Remarkably, the simplest possible modular invariant SFF consistent with quantum chaos is identical to that described by a dual Euclidean wormhole geometry in AdS3 gravity. I will also discuss the universal late-time behavior of the SFF, i.e., the approach to the ‘plateau’, and how it is realized in modular invariant CFTs.