

Intersections of Topological Recursion, Conformal Field Theory, and Random Geometry



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L-functions, automorphic spectra, and the conformal bootstrap.

Recently, a close parallel emerged between the spectral theory of automorphic forms and conformal field theory in general dimension. I will review this connection and explain how it can be leveraged to prove new results in number theory and spectral geometry using ideas borrowed from the conformal bootstrap. In particular, I will discuss new subconvex bounds on L-functions, and the spectral gaps of hyperbolic manifolds. I will speculate about the implications of this correspondence for quantum field theory.