Institut Henri Poincaré

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String Theory in Greater Paris

Rencontres Théoriciennes

"Supergravité, théorie des cordes et théorie M"

Jeudi 21 Octobre 2021, 10:00

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CERN

domness in the statistical distribution of OPE coefficients and Euclidean wormho

The eigenstate thermalization hypothesis is one of the most universal features of chaotic quantum many-body systems, which claims that matrix elements of simple operators in high energy states has a universal structure which treats off- diagonal elements statistically. Along with the random-matrix like behaviour of energy eigenstates, it is one of the main smoking guns of quantum chaos. In this talk, I will introduce the OPE randomness hypothesis : a conjecture for the statistical distribution of OPE coefficients in chaotic conformal field theories. This hypothesis generalizes the ETH ansatz and treats OPE coefficients statistically, with a distribution given to leading order by a Gaussian distribution, with corrections exponentially suppressed in the entropy. I will give evidence for this conjecture, based on asymptotic formulas for OPE coefficients that can be derived thanks to crossing symmetry and for 2d CFTs, modular invariance. I will discuss the gravitational counterparts of these results and underline the importance of Euclidean wormholes.

Institut Henri Poincaré, salle 314, 3ème étage

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