

25th Rencontres Itzykson - Many Body Chaos, Scrambling and Thermalization in Interacting Quantum Systems



ID de Contribution: 50

Type: **Non spécifié**

Wormholes without averaging

vendredi 4 juin 2021 19:00 (40 minutes)

After averaging over fermion couplings, SYK has a collective field description that sometimes has “wormhole” solutions. We study the fate of these wormholes when the couplings are fixed. Working mainly in a simple model, we find that the wormhole saddles persist, but that new saddles also appear elsewhere in the integration space – “half-wormholes.” The wormhole contributions depend only weakly on the specific choice of couplings, while the half-wormhole contributions are strongly sensitive. The half-wormholes are crucial for factorization of decoupled systems with fixed couplings, but they vanish after averaging, leaving the non-factorizing wormhole behind. (Joint work with Phil Saad, Douglas Stanford and Shunyu Yao.)

Orateur: SHENKER, S.