Contribution ID: **12** Type: **not specified**

Periodically driven SYK wormholes

We study the non-equilibrium dynamics of the 2-coupled SYK models. The system has a high-temperature phase, which is dual to two separate black holes in AdS, and a low-temperature phase, dual to a traversable wormhole. We add a periodic driving to the coupling between the two sides. If the amplitude of the driving is too high, the system heats up and absorbs enough energy to close the wormhole and transit to the black hole phase. If the amplitude is small enough, we can remain in the wormhole phase. However, in this case, for some particular frequencies the absorption of energy is amplified, and the wormhole closes, signalling some type of resonance. We study the heating dynamics and energy transport of our setup, and try to understand the nature of these resonant frequencies.

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