Quantum Dynamics in Curved 2d CFT: Sine-square Deformed CFT

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In this work, we try to study the quantum dynamics of CFT on curved space. We focus on the sine-squared deformed theory of the 1+1 dimensional critical system and find that the theory can be described by a CFT on curved space time. To study the dynamics we consider a quantum quench from uniform CFT to the sine-squared deformed CFT. We calculate the entanglement entropy evolution in CFT and find perfect match with numerical calculation. On the other hand, we also consider floquet process. Tuning the parameter, we can get different phases: oscillation phase and heating phase. I will also give some comments on thermalization and black hole problem.