

NEW PERSPECTIVES IN CONFORMAL FIELD THEORY AND GRAVITY

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Quantum information geometry of driven CFTs

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Driven quantum systems exhibit a large variety of interesting and sometimes exotic phenomena. In this talk, I study driven two-dimensional conformal field theories from spacetime and quantum information geometric points of view. First, I show that a large class of driving protocols can be realized by coupling the CFT to a time-dependent background spacetime metric. I will do this in the operator formulation as well as in the path integral description of the CFT and elucidate some puzzles. The spacetime driving gives rise to a universal class of CFT states, dubbed Virasoro states, for which I present a quantum information geometry based on relative entropy. If time permits, I will use the information geometry to characterize CFTs periodically driven by the Möbius group. The talk is based on arXiv:2306.00099.

Summary

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