



清华大学高等研究院

Institute for Advanced Study, Tsinghua University

学术报告

- Title:** Floquet Conformal Field Theory
- Speaker:** Ruihua Fan 范瑞华 (*Harvard*)
- Time:** 3:00pm, Wednesday, July 10, 2019
- Venue:** Conference Hall 322, Science Building, Tsinghua University

Abstract

We study the energy and entanglement dynamics of generic 1+1D CFT driven by the sine-square deformed(SSD) Hamiltonian, which was found to support a non-heating and heating phase. I will start with a driving harmonic oscillator, which serves as a quantum mechanical brother of the CFT problem. Then I will talk about the energy and entanglement pattern in different phases and their relation. The non-heating phase is unstable against any small fluctuation of the driving frequency. The heating phase, where the energy grows exponentially, is much more robust. The system will develop a chiral and an anti-chiral energy peak that grows with time exponentially. All of the entanglement entropy is shared by them. These phenomena are robust and universal for any (1+1)d CFT and have a geometric interpretation that can be generalized to other setups beyond this SSD construction. A quasi-particle picture reveals its hidden relation with time crystal. We also find that the total energy is related to the entanglement by a simple relation, which is also universal for any CFT.