FRONTIERS OF QUANTUM MATTER

量子物质前沿讲座

CONFERENCE HALL 104

SCIENCE BUILDING

TSINGHUA UNIVERSITY

Fixed-point tensor network construction and generalized symmetry for conformal field theory

4:00 PM， June 11， 2025

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The novel concept of entanglement renormalization and its corresponding tensor network renormalization technique have been highly successful in developing a controlled real space renormalization group (RG) scheme. In this talk, I will present an explicit analytical construction of the fixed point(FP) tensor for 2D rational CFT. We define it as a correlation function between the "boundary-changing operators" on triangles. Our construction fully captures all the real-space RG conditions. We also provide a concrete example using the several models to compute the scaling dimensions explicitly. Interestingly, our construction of FP tensors is closely related to a strange correlator, where the holographic picture and generalize symmetries naturally emerge. If time permits, I will also discuss some unpublished results on irrational CFT and even complex CFT. Our results open a new door towards understanding CFT in higher dimensions.