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Universal scaling of conserved charge in the stochastic diffusion dynamics

Summary

In this paper, we explore the Kibble-Zurek scaling of the conserved charge, using the stachastic diffusion dynamics. After determining the characteristic scales τ KZ and l KZ and properly rescaling the traditional correlation
function and cumulant, we construct universal functions for both the two-point correlation function C(y 1 – y 2 ; τ)
and second-order cumulant K(Δy, τ) of the conserved charge in the critical regime, which are insensitive to the
initial temperature and a parameter in the mapping between 3D Ising model and the hot QCD system near the
critical point.

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