Contribution ID: **116**   Type: **Oral presentation**

An exploration of sphaleron rate in lattice QCD

Friday, 30 July 2021 05:45 (15 minutes)

In this talk we show our lattice QCD calculations for the sphaleron rate (the Minkowski rate for topological charge diffusion). It is determined by modeling the spectral function encoded in the Euclidean topological-charge-density two-point function. The Euclidean correlation functions are measured under gradient flow to reduce noise with improved operators which can more accurately measure topology. The calculations are carried out on large, fine lattices in the quenched approximation at $1.5\,T_c$. With these data we first perform a continuum extrapolation at fixed physical flow time and then extrapolate the continuum estimates to zero flow time. The extrapolated correlators are then used to study the sphaleron rate by spectral reconstruction based on perturbatively motivated models.

Primary authors: LORENZ, Anna-Lena (Bielefeld University); Dr SHU, Hai-Tao (Bielefeld University); Dr SANDMEYER, Hauke; DING, Heng-Tong (Central China Normal University); Dr OHNO, Hiroshi (Center for Computational Sciences, University of Tsukuba); KACZMAREK, Olaf (University of Bielefeld); LARSEN, Rasmus (University of Stavanger); MUKHERJEE, Swagato (Brookhaven National Laboratory)

Presenter: Dr SHU, Hai-Tao (Bielefeld University)

Session Classification: QCD at nonzero Temperature and Density

Track Classification: QCD at nonzero Temperature and Density