Critical Behavior towards the Chiral Limit of (2+1)-flavor QCD

Dr. Mugdha Sarkar (National Taiwan University)

2021/10/26(Tuesday)/14:20~15:20

Google Meet: https://meet.google.com/tgv-wzqv-ayp

Abstract: Understanding the phase diagram of QCD is one of the primary goals of lattice QCD calculations and the heavy-ion collision experiments at RHIC and the LHC. Despite ongoing research for several years, the nature of the chiral symmetry restoration of QCD with two light flavours in the chiral limit is still not clear. We study the scaling behavior of the (2+1)-QCD crossover region towards the chiral limit using smaller-than-physical light quark mass gauge ensembles, generated with the HISQ fermion discretisation. We discuss the imprint of the criticality in the thermodynamic observables as we move closer towards the chiral limit. Our results seem consistent with a chiral phase transition belonging to the universality class of 3d O(N) models.