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Critical behavior towards the chiral limit at vanishing and non-vanishing chemical potentials

Thursday, 29 July 2021 06:00 (15 minutes)

We study the scaling behavior of the (2+1)-QCD crossover region towards the chiral limit with smaller-than-physical light quark mass gauge ensembles, generated using the HISQ fermion discretisation. We calculate the leading curvature coefficient of the QCD crossover line at smaller light quark masses and compare it with the curvature in the chiral limit obtained using scaling arguments. At zero chemical potential, we study the fluctuations of conserved charges and their correlations with the chiral condensate and chiral susceptibility, towards the chiral limit. We analyse the role of universal and regular contributions to the above quantities.

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