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Chiral phase transition in (2 + 1)-flavor QCD

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We present our recent results on the chiral phase transition in 2+1 flavor QCD on lattices with temporal extent $N_\tau = 6$. We have performed lattice QCD simulations using the Highly Improved Staggered Quarks with 5 different values of pion masses, i.e. 160, 140, 110, 90, 80 MeV in a temperature window from 140 MeV to 170 MeV. We have analyzed the universal scaling behaviour of the chiral phase transition at vanishing baryon chemical potential by looking into the temperature and quark mass dependences of the chiral condensates of chiral susceptibilities. The window of criticality compared to previous studies is also discussed.

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