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Dirac eigenvalue spectrum and its relation to U(1)A symmetry breaking in high temperature Nf = 2 + 1 QCD

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We will present results on the Dirac eigenvalue spectrum as well as its relation to the axial U(1) and SU(2)xSU(2) symmetries at a high temperature in (2+1)-flavor QCD. The simulations are carried out using the highly improved staggered quarks (HISQ) action on $N\tau$ = 8, 12 and 16 lattices with the aspect ratio $N\sigma$ /$N\tau$ in a range of [4,9] and 4-5 pion masses ranging from 160 MeV to 55 MeV at a single temperature of ~ 200 MeV.

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