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Measuring chiral susceptibility using gradient flow

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We study the chiral susceptibility in $N_f = 2 + 1$ full QCD. In the
lattice gauge theory with Wilson fermion, chiral symmetry is explicitly broken. Therefore, we need a non-trivial additive correction to renormalize the chiral susceptibility. To avoid this problem, we use Gradient flow method. Gradient flow method makes us possible to define correctly renormalized chiral susceptibility without additive renormalization even if we use Wilson fermion. We measure not only disconnected diagram but also connected diagram for chiral susceptibility. This measurement is on finite temperature full QCD with $N_f = 2 + 1$ Wilson fermion, and for temperature range 178-348 MeV.

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