

## What is chiral susceptibility probing?

*Thursday, 16 February 2023 10:00 (30 minutes)*

In the early days of QCD, the axial  $U(1)$  anomaly was considered to trigger the breaking of the  $SU(2)_L \times SU(2)_R$  symmetry through topological excitations of gluon fields. However, it has been a challenge for lattice QCD to quantify the effect. In this work, we simulate QCD at high temperatures with chiral symmetric lattice Dirac operator. The exact chiral symmetry enables us to separate the contribution from the axial  $U(1)$  breaking from others among the susceptibilities in the scalar and pseudoscalar channels. Our result in two-flavor QCD indicates that the connected and disconnected chiral susceptibilities, which is conventionally used as a probe for  $SU(2)_L \times SU(2)_R$  breaking, are dominated by the axial  $U(1)$  anomaly at temperatures greater than 165 MeV.

### Recording and publishing

yes

**Primary author:** FUKAYA, Hidenori (Osaka University)

**Presenter:** FUKAYA, Hidenori (Osaka University)

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