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## On the axial $U(1)$ symmetry at finite temperature

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We report the results of our finite temperature investigation of the axial symmetry restoration at finite temperature. We simulated two flavors of domain-wall fermions at several volumes and lattice spacings.

After taking into account the systematic errors from the violation of the Ginsparg-Wilson relation, our results show that in the chiral limit there is a strong suppression of the axial  $U(1)$  symmetry breaking measured using meson susceptibilities. This suppression is compatible with a no-breaking scenario at zero quark mass in the chirally symmetric phase.

We observed that the contribution of the violations of the GW relation to the meson susceptibilities are much larger than what the residual mass measurement would suggest.

We also show some insights on the sources of the violations related to the lowest eigenmodes of the Dirac operator.

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