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The $U_A(1)$ anomaly in high temperature QCD with chiral fermions on the lattice

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The magnitude of the $U_A(1)$ symmetry breaking is expected to affect the nature of the $N_f = 2$ QCD chiral phase transition. The explicit breaking of chiral symmetry due to realistic light quark mass is small, hence it is important to use chiral fermions on the lattice to understand the effect of $U_A(1)$ near the chiral crossover temperature, T_c . I present our latest results for the eigenvalue spectrum of 2+1 flavour QCD with dynamical Möbius domain wall fermions at finite temperature probed using the overlap fermion operator on a $32^3 \times 8$ lattice. We observe that the $U_A(1)$ is broken near T_c and the low-lying eigenvalues primarily contributing to it. We check how sensitive the low-lying eigenvalues are on the sea-light quark mass and the lattice volume. We also present comparison with the earlier independent results with domain wall fermions.

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