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Numerical study of the 2+1d Thirring Model with $U(2N)$ -invariant fermions

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Content

In 2+1 dimensions the global $U(2N)$ symmetry associated with massless fermions is broken to $U(N)\otimes U(N)$ by a parity-invariant mass. I will show how to adapt the domain wall formulation to recover the $U(2N)$ -invariant limit in interacting fermion models as the domain wall operation is increased. In particular, I will focus on the issue of potential dynamical mass generation in the Thirring model, postulated to take place for N less than some critical N_c . I will present results of simulations of the model using both HMC ($N=2$) and RHMC ($N=1$) algorithms, and show that the outcome is very different from previous numerical studies of the model made with staggered fermions, where the corresponding pattern of symmetry breaking is distinct.

Preferred track (if multiple tracks have been selected)

Chiral Symmetry

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