

Abstract Submitted  
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**Quantum Monte Carlo Simulation of one dimensional  $SU(N)$  Fermion system** SHENGLONG XU, CONGJUN WU, University of California, San Diego — One dimensional interacting fermionic systems with  $SU(N)$  symmetry have been realized in ultracold atom systems. The interplay between the dimensionality and symmetry provides a platform to search for unconventional phenomena. Inspired by recent experiments, we use quantum Monte Carlo to explore the metallic phase, nature of the metal-insulator transition as well as possible exotic magnetic orders of such systems. The effects of trapping potential are also discussed.

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