

Abstract Submitted
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**Competition between antiferromagnetism and superconductivity
– a quantum Monte-Carlo study** DA WANG, Department of Physics, University of California, San Diego, YI LI, Princeton Center for Theoretical Science, Princeton University, CONGJUN WU, Department of Physics, University of California, San Diego — The competition between antiferromagnetism (AFM) and superconductivity (SC) remains a challenging problem in condensed matter physics because of the lack of non-perturbative method to handle strong correlations. Quantum Monte Carlo (QMC) simulations often suffers from the notorious fermion sign problem. It has been found that in a multi-band Hubbard model, or, equivalently, a large-spin Hubbard model, the sign problem can be removed at arbitrary fillings in a parameter regime in which SC competes with AFM. We have performed QMC simulations to investigate the phase diagram as doping and interaction strength.

Da Wang
Department of Physics, University of California, San Diego

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