Abstract Submitted
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Quantum Monte Carlo with short directed loops YING-JER KAO,
National Taiwan University — We introduce a new type of directed loop algorithm
with short-loop generation for the stochastic series expansion quantum Monte Carlo
method[1]. Short-loop algorithms have been shown to greatly improve the dynamics
at low temperature in studies of classical spin ice models[2]. We will discuss the
framework of this algorithm and make comparisons to the conventional directed
loop algorithm in a specific quantum spin model.
[1]O.Suljuasen and A. W. Sandvik, Phys. Rev. E66, 046701 (2002).
[2]R. Melko et al., Phys. Rev. Lett. 87, 067203 (2001).

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