

Abstract Submitted  
for the MAR17 Meeting of  
The American Physical Society

**Toward a quasi-probability representation of matchgate circuits**

NINNAT DANGNIAM, Univ of New Mexico, CHRISTOPHER FERRIE, Univ of Sydney, CARLTON CAVES, Univ of New Mexico — Quantum circuits composed of a particular class of gates called matchgates range from circuits that are classically simulatable to those that can perform universal quantum computation. Matchgate computation can also be understood from a more physical point of view as a computation with fermionic modes. We attempt to construct a quasi-probability (phase space) representation of quantum theory in which classically simulatable matchgate circuits are represented positively i.e. non-contextually.

Ninnat Dangniam  
Univ of New Mexico

Date submitted: 10 Nov 2016

Electronic form version 1.4