

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Evaluation of high-order moments and cumulants in quantum spin systems¹ COLIN WEST, ARTUR SAEZ-GARCIA, TZU-CHIEH WEI, Yang Institute for Theoretical Physics, Stony Brook University, WEI GROUP TEAM — We present a numerical scheme for efficiently extracting the higher-order moments and cumulants of various operators on spin systems represented as tensor product states, for both finite and infinite systems. These quantities can be useful in the evaluation of phase transitions. Of particular interest is the application of this method to calculate the so-called Binder's Cumulant, which can be used to detect critical points even with small finite numerical calculations.

¹This work was supported in part by the National Science Foundation.

Colin West
Yang Institute for Theoretical Physics, Stony Brook University

Date submitted: 14 Nov 2014

Electronic form version 1.4