Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Monte-Carlo simulations of su(2) symmetric deconfined criticality action[1] A.B. KUKLOV, CSI, CUNY, M. MATSUMOTO, Universite Paul Sabatier, Toulouse ; ETH Zurich , N.V. PROKOF'EV, UMASS, Amherst; ETH Zurich; Kurchatov Institute, Moscow, B.V. SVISTUNOV, UMASS, Amherst; Kurchatov Institute, Moscow, M. TROYER, ETH Zurich — We discuss results of Monte Carlo simulations of su(2) symmetric deconfined criticality action in CP^1 formulation proposed by T. Senthil,et. al, Science **303**, 1490 (2004). Using high-temperature expansion we reformulate the partition function in terms of J-currents. The resulting configuration space is explicitly su(2) symmetric. Critical behavior in the region of possible deconfined critical point (DCP) is addressed by the flow method [A.B.Kuklov, et.al., Annals of Physics **321**,1602(2006)] mapping critical properties of a system with small values of the gauge interaction g at large sizes to a system with large g and small sizes. We observe data collapse on a single master curve with the flow toward fluctuation induced I order transition. The unlikely possibility of existence of the lower tricritical point separating I order transitions from the DCP line is assessed in terms of disruption of the flow collapse.

[1]Authors acknowledge support from National Science Foundation, grants PHY0426814, PHY 0426881,PHY0653135; PHY 0653183; and from CUNY grants 69191-0038; 80209-0914

A.B. Kuklov
CSI, CUNY

Date submitted: 27 Nov 2007 Electronic form version 1.4