Abstract Submitted for the MAR14 Meeting of The American Physical Society

Phases of a one dimensional chain of topological twist defects ABHISHEK ROY, JEFFREY TEO, XIAO CHEN, University of Illinois, Urbana-Champaign — A topological twist defect acts on a system containing abelian anyons by permuting anyon labels in a manner that preserves their braiding properties. We investigate a one dimensional chain of twist defects. The Hamiltonian consists of Wilson loop operators, each enclosing a pair of neighbouring defects. We explore both gapped and gapless phases. For the former, we use anyon pumping to classify the ground states. For the latter, we present numerical evidence for the central charge for various values of the coupling constants. We extend the above results from twofold defects (which are similar to  $Z_k$  parafermions) to threefold defects introduced by us earlier in an exactly solvable lattice model [1].

[1] Unconventional Fusion and Braiding of Topological Defects in a Lattice Model. Jeffrey C.Y. Teo, Abhishek Roy, Xiao Chen arXiv:1306.1538

> Abhishek Roy University of Illinois, Urbana-Champaign

Date submitted: 17 Nov 2013

Electronic form version 1.4