Abstract Submitted for the MAR07 Meeting of The American Physical Society

Explicit monodromy of Moore-Read wave functions on a torus SUK BUM CHUNG, MICHAEL STONE, University of Illinois at Urbana-Champaign — We construct the wave functions for the Moore-Read $\nu=5/2$ quantum Hall state on a torus in the presence of two quasiholes. These explicit wave functions allow us to compute the monodromy matrix that describes the effect of quasihole motion on the space of degenerate ground states. The result agrees with that discussed recently by Oshikawa et al. (cond-mat/067743) Our calculation provides a conformal field theory explanation of why certain transitions between ground states are forbidden. It is because taking a quasihole around a generator of the torus can change the fusion channel of the two quasiholes, and this requires a change of parity of the electron number in some of the ground states.

Suk Bum Chung University of Illinois at Urbana-Champaign

Date submitted: 20 Nov 2006 Electronic form version 1.4