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Matrix Product States for Non-Abelian Quasiholes YANG-LE WU, Princeton University, B. ESTIENNE, LPTHE, CNRS, UPMC, Universite Paris 06, N. REGNAULT, Princeton University, Ecole Normale Superieure and CNRS, B. ANDREI BERNEVIG, Princeton University — Exotic phases in fractional quantum Hall effect provide a potential platform for the realization of non-Abelian anyons. A large class of physically relevant trial wave functions for these strongly-correlated phases can be constructed from the many-point correlators in various chiral conformal field theories. It was recently realized that this construction can be naturally reformulated in terms of matrix product states and efficiently carried out on a computer, even for interacting conformal fields. In this talk, I will explain how to construct the matrix product state representation of quasihole wave functions, and employ this new numerical tool to examine the braiding statistics and the screening property of several non-Abelian quantum Hall states, including the Moore-Read and the Read-Rezayi states, as well as the Gaffnian wave function.

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