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Matrix Product States and Fractional Quantum Hall B. ANDREI BERNEVIG, Princeton University, BENOIT ESTIENNE, Paris Jussieu, NICOLAS REGNAULT, Princeton University/ Ecole normale superieure paris, ZLATKO PAPIC, Princeton University — We present an exact matrix product state expansion (MPS) for a large series of Jack polynomial wavefunctions which serve as Fractional Quantum Hall ground-states of pseudopotential Hamiltonians. Using the basis of descendants in Virasoro and W algebras we build MPS descriptions of the (k,2) Jacks which include the Moore-Read state and the Gaffnian state, as well as MPS representation of the Z_3 Read-Rezayi state. We then give a general method for computing MPS representations for other non-abelian states and their quasiholes.

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