**Numerical study of Fibonacci anyons in superconductor/quantum Hall structures** EDWIN MILES STOUDENMIRE, Perimeter Institute for Theoretical Physics, DAVID CLARKE, ROGER MONG, JASON ALICEA, California Institute of Technology — We apply the density matrix renormalization group (DMRG) to ladders of coupled Z3 parafermions (a type of abelian anyon) following the proposal of Mong, Clarke, et al. who showed that such parafermions can in principle be engineered in superconductor/quantum Hall heterostructures and then coupled to form a gapped 2d phase supporting non-abelian Fibonacci anyons. Because DMRG works well for gapped phases and can handle arbitrarily strong interactions, it complements Mong et al.'s analytical approach based on weakly coupled critical chains. We establish the basic phase diagram and verify key properties of the 2d Fibonacci phase.

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