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A DMRG study of topological domain walls in fractional quantum Hall states ABOLHASSAN VAEZI, Stanford University, MOHAMMAD-SADEGH VAEZI, Washington University in Saint Louis — The potential emergence of non-Abelian anyon excitations in Abelian topological states has become a subject of extensive research in the past few years. In particular, it is expected that the endpoint of the one dimensional lines of interlayer tunneling/coupling or electron pairing would host parafermion zero modes (PFZMs). In this talk, we present the results of the first numerical study of such domain walls in fractional quantum Hall states as well as fractional Chern insulators. Our findings are consistent with the signatures of PFZMs. Having access to the microscopic details of the model allows us to study the stability of PFZMs against perturbations. Our results establish a closer connection with more realistic experimental setups.

Abolhassan Vaezi
Stanford University

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