Emergent Anyons in Exactly Solvable Discrete Models for Topological Phases in Two Dimensions[1] YUTING HU, SPENCER STIRLING[2], YONG-SHI WU[3], Department of Physics and Astronomy, University of Utah — Anyons can emerge as collective excitations in models of topological phases. Exactly solvable discrete models that describe two-dimensional topological phases were proposed by Kitaev, and Levin and Wen respectively. I will present the explicit form of the operators that create and move fluxons (anyonic quasiparticles living at the plaquettes) in the Levin-Wen models. The exchange and exclusion statistics of these fluxons are studied. In particular, I will discuss the topological properties of Fibonacci anyons emerging in a particular Levin-Wen model.

[2]Department of Mathematics, University of Utah
[3]Key State Laboratory of Surface Physics, and Department of Physics, Fudan University

Yuting Hu
Department of Physics and Astronomy, University of Utah