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String-nets, quantum loop gases and the sign problem for non-abelian anyons ANDREA VELENICH, CLAUDIO CHAMON, Boston University, XIAO-GANG WEN, M.I.T. — Hamiltonians giving rise to topological ground states can be constructed explicitly as sums of local operators acting on Hilbert spaces where distinct classical string-net configurations are orthogonal. We show explicitly the connection beteewn string-nets and quantum loop gas models with their non-orthogonal inner product. Also we emphasize the role of the "sign problem" for a Hamiltonian in enforcing the topological character of its ground state.

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