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Parent Hamiltonians for Bosonic Symmetry-Protected States LUIZ SANTOS, Perimeter Institute — A platform for constructing parent Hamiltonians describing bosonic symmetry-protected (SPT) states will be presented. The Hamiltonians we consider are examples of frustration-free Rokhsar-Kivelson models, which are known to be in one-to-one correspondence with classical stochastic systems in the same spatial dimensionality. By exploring this classical-quantum mapping we are able to propose Hamiltonians which, in a closed manifold, yield a unique gapped symmetric ground state describing the universal properties of SPT states. Specific examples which illustrate our approach shall be discussed.

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