

Abstract Submitted  
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**Quantum spin liquid in two-dimensional Kagome lattice spin-1/2 XY model with 4-site ring exchange**<sup>1</sup> LONG DANG, ROGER MELKO, University of Waterloo — We have studied the 2D Kagome lattice spin-1/2 XY model with 4-site exchange. The ground state properties are investigated within the framework of the Stochastic Series Expansion quantum Monte Carlo (QMC) technique. We have found a featureless insulating phase in the regime of large 4-site exchange interaction. This novel phase is a potential candidate for a the  $Z_2$  quantum spin liquid phase proposed by Balents, Girvin and Fisher [Phys. Rev. B, **65**, 224412 (2002)] in a related model. Our efforts to characterize this phase using large-scale QMC simulations are also discussed.

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