

Abstract Submitted  
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**Dynamical correlations of the Quantum Dimer Model on the triangular lattice** ARNAUD RALKO, ITP, Ecole Polytechnique Fédérale de Lausanne, Switzerland, MICHEL FERRERO, FEDERICO BECCA, INFN-Democritos, SISSA, Trieste, Italy, DMITRI IVANOV, FRÉDÉRIC MILA, ITP, Ecole Polytechnique Fédérale de Lausanne, Switzerland — Using Green's function Monte Carlo simulations, we have studied the zero-temperature properties of the quantum dimer model (QDM) on the triangular lattice [1] on clusters with up to 588 sites. A detailed comparison of the static properties in different topological sectors as a function of the cluster size and for different cluster shapes has allowed us to identify different phases, and to show explicitly the presence of topological degeneracy in a phase close to the Rokhsar-Kivelson point, in agreement with an earlier suggestion [2]. We have also extended the Green's function Monte Carlo algorithm to calculate dynamical correlation functions. Preliminary results on the dimer-dimer correlations confirm the extension of the RVB phase and bring new insight on the nature of the transition to the  $\sqrt{12} \times \sqrt{12}$  phase and on the type of long-range order realized in that phase.

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[2] R. Moessner and S.L. Sondhi, Phys. Rev. Lett, **86**, 1881 (2001).

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