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	Nota di contenuto	Introduction -- Kitaev's Honeycomb Lattice Model -- Dynamic Spin Correlations - Mapping to a Quantum Quench -- Results for the Structure Error -- Non-Abelian Phase and the Effect of Disorder -- Raman Scattering -- Conclusion and Outlook -- Appendix A: Pfaffians from Path Integrals -- Appendix B: X-Ray Edge and Singular Integral Equations -- Appendix C: Exact Diagonalization of Four Dimers -- Appendix D: Calculation of Matrix Elements.
	Sommario/riassunto	This thesis presents an exact theoretical study of dynamical correlation functions in different phases of a two-dimensional quantum spin liquid. By calculating the dynamical spin structure factor and the Raman scattering cross section, this thesis shows that there are salient signatures—qualitative and quantitative—of the Majorana fermions and the gauge fluxes emerging as effective degrees of freedom in the

exactly solvable Kitaev honeycomb lattice model. The model is a representative of a class of spin liquids with Majorana fermions coupled to Z2 gauge fields. The qualitative features of the response functions should therefore be characteristic for this broad class of topological states.