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Study of a lattice 2-group gauge model

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In this talk, I discuss a simple model based on the symmetry group Z_2 belonging to the class of 2-group gauge systems. Particular limits of such systems correspond to certain types of topological quantum field theories. In the selected model, independent degrees of freedom are associated to both links and faces of a four-dimensional lattice and are subject to a certain constraint. I present the details of this construction, discuss the expected dynamics in different regions of phase space and show numerical results from Monte Carlo simulations confirming these expectations.

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