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E2: Tensor network formulation of massless lattice Schwinger model

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We construct a tensor network representation of the partition function for the massless Schwinger model on a two dimensional lattice using staggered fermions. The tensor network representation allows us to include a topological term. Using a particular implementation of the tensor renormalization group (HOTRG) we calculate the phase diagram of the theory. For a range of values of the coupling to the topological term θ and the gauge coupling β we compare with results from hybrid Monte Carlo when possible and find good agreement.

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