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**A  $\Gamma$ -matrix generalization of the Kitaev model** HSIANG-HSUAN HUNG, CONGJUN WU, DANIEL AROVAS, University of California, San Diego — We extend the Kitaev model defined for the Pauli-matrices to the Clifford algebra  $\Gamma$ -matrices by taking the  $4 \times 4$  representation as an example. In a 2D decorated square lattice, the ground state spontaneously breaks time-reversal symmetry and exhibits a topological phase transition. The topologically non-trivial phase carries gapless chiral edge modes along the sample boundary. In the 3D diamond lattice, the ground states can exhibit gapless 3D Dirac cone-like excitations and gapped topological insulating states. The generalizations to even higher rank  $\Gamma$ -matrices are also discussed.

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