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Type: **Oral not-in-competition (Graduate Student) / Orale non-compétitive (Étudiant(e) du 2e ou 3e cycle)**

WITHDRAWN Continuous transition between an ordered Ising magnet and a topological phase

We propose a theory of phase transitions between symmetry breaking and (intrinsic) topological phases in two-dimensional Ising spin systems. This is done by means of a parton decomposition of the Ising spins into $2N$ Majorana fermions, which are assumed at the mean-field level to form a Class D topological superconductor with Chern number C . Various phases are obtained by tuning C . For example, transitions between $C=0, 1, 2$ phases are described by a parton theory of massive Majorana fields coupled to an internal $SO(2N)$ gauge field with a Chern-Simons term. Utilising various level-rank dualities of Chern-Simons-matter theories, and instanton resummation methods originally developed by 't Hooft in the solution of the $U(1)$ problem in QCD, we demonstrate phase transitions between paramagnetic, magnetically ordered, and quantum spin liquid phases for the Ising spins.

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