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Scaling and Topological Phase Transitions: Energy vs. Entropy

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Univ of Minnesota - Twin Cities — The critical point of a topological phase transition is described by a conformal field theory. Finite-size corrections give rise to a scaling function away from criticality for both energy and entanglement entropy of the system. While in the past the scaling function for the usual von Neumann entropy was found to be equal for the trivial and the topological side of the transition, we find that the scaling functions for energy and Renyi entropy with $\alpha > 1$ are different for the two sides. This provides an easy tool to distinguish between the trivial and topological phases near criticality.

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