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Kenya Tasuki: Multi-entropy at Ising Criticality

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Multi-entropy, a recently introduced generalization of bipartite entanglement entropy, has been proposed as a powerful probe of multipartite correlations; however, it has been little explored in explicit calculations for many-body systems so far. We investigate its scaling behavior in the one-dimensional transverse-field Ising model near the critical point. Numerical results from tensor network calculations quantitatively reproduce conformal field theory predictions at criticality and match exact solutions for the infinite chain derived via the Jordan-Wigner transformation. Finite-size scaling analysis further enables precise extraction of the critical field and central charge. This is based on a paper in preparation with Jonathan Harper, Ali Mollabashi, and Tadashi Takayanagi.