Conformal invariance of spin correlations in the planar Ising model

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We rigorously prove existence and conformal covariance of scaling limits of spin correlations in the critical Ising model (defined on square grid approximations of a simply connected planar domain). This solves a number of conjectures coming from physical and mathematical literatures. The proof is based on convergence results for discrete holomorphic spinor observables which allow us to compute the logarithmic derivatives of those correlations with respect to positions of points, and relate the correlations for various boundary conditions to each other.

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