Abstract Submitted
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Fisher zeros and correlation functions in Ising models FELICITAS BEICHERT, CHRIS HOOLEY, University of St Andrews, VADIM OGANESYAN, City University of New York, RODERICH MOESSNER, Max-Planck-Institute for the Physics of Complex Systems — Phase transitions take place at singular points of the free energy. These correspond to zeros of the partition function when one tuning parameter is extended into the complex plane (so called Lee-Yang or Fisher zeros). It has been known since the 1960s that transition temperatures and critical exponents can be calculated from the distributions of these partition function zeros. We use this technique to calculate the spin-spin correlation function for the 1d Ising model and notice that it forms a spiral with a wavevector dependent on the position of the complex temperature on the contour of zeros. To extend this we will look at results from the 2d Ising model as well as the Ising model in a transverse field.

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