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Noise in Disordered Systems: Higher Order Spectra in Avalanche Models[1] AMIT MEHTA, KARIN DAHMEN, MICHAEL WEISSMAN, TIMOTHY WOTHERSPOON, University of Illinois at Urbana Champaign — We present a novel analytic calculation of the Haar power spectra, and various higher order spectra, of mean field avalanche models. We also compute these spectra from a simulation of the zero-temperature mean field random field Ising Model and infinite range random field Ising model in three dimensions. We extract universal scaling exponents and compare mean field results and simulation results and experimental results for Barkhausen noise in magnets. Applications to other systems with avalanche noise are also discussed.

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