

## Non-Universality in Barkhausen Noise Signatures of Thin Iron Films

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**Abstract :** We discuss angle dependent changes to the Barkhausen noise signatures of thin epitaxial Fe films upon altering the angle of the applied field. We observe a sub-critical to critical phase transition in the hysteresis loop of the sample upon increasing the out-of-plane component of the applied field. The observations are discussed in the light of simulations of a 2D Gaussian Random Field Ising Model with references to a reducible form of the Random Anisotropy Ising Model.

**Keywords :** Barkhausen noise, Planar Hall effect, Random Field Ising Model, Random Anisotropy Ising Model

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