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Interface scaling limit for the critical planar Ising model perturbed by a magnetic field

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In this talk, I will consider the interface separating +1 and -1 spins in the critical planar Ising model with Dobrushin boundary conditions perturbed by an external magnetic field. I will prove that this interface has a scaling limit. This result holds when the Ising model is defined on a bounded and simply connected subgraph of $\delta\mathbb{Z}^2$, with $\delta > 0$. I will show that if the scaling of the external field is of order $\delta^{15/8}$, then, as $\delta \to 0$, the interface converges in law to a random curve whose law is conformally covariant and absolutely continuous with respect to SLE_3. This limiting law is a massive version of SLE_3 in the sense of Makarov and Smirnov and I will give an explicit expression for its Radon-Nikodym derivative with respect to SLE_3. I will also prove that if the scaling of the external field is of order $\delta^{15/8} g(\delta)$ with $g(\delta) \to 0$, then the interface converges in law to SLE_3. In contrast, I will show that if the scaling of the external field is of order $\delta^{15/8} f(\delta)$ with $f(\delta) \to \infty$, then the interface degenerates to a boundary arc.

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