

Correlation Functions as a Probe for Pinning Transitions

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We present new results for an Ising Model with a pinning potential at one edge. Our potential, which is expressed as a line of reduced bond strengths (the line is parallel to the edge, but the reduced bond is normal to it) penetrates two bonds deep into the bulk. This extends the usual single layer result and we also consider the associated bubble model. We have further developed the techniques of this work to calculate the pair correlation function for spins in the edge exactly. This is done by explicitly creating pinned "bubbles" of the intruding phase next to the wall. This methodology has potential to be exploited experimentally and should give an alternative scheme for examining wetting or pinning-depinning phenomena at solid-fluid interfaces.