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How to measure the spatial characteristics of the Kosterlitz-Thouless transition in disordered systems? AMIR EREZ, YIGAL MEIR, Ben Gurion University of the Negev — The effect of disorder on the Kosterlitz-Thouless (KT) transition in two dimensions is unresolved. Here we propose and simulate an experiment to probe the spatial nature of the KT transition in such disordered systems, by studying the effects of cutting individual bonds in the disordered classical two-dimensional XY model. This will allow, similar to experiments carried out on quasi one-dimensional and on quantum Hall systems, to probe the channels through which global phase coherence propagates. We analyze the spatial distribution of these bonds and discuss implications towards a percolation description of the KT transition in superconducting thin films.

Amir Erez
Ben Gurion University of the Negev

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