

CONDITIONAL PHASE TRANSITIONS: SOME SIMPLE EXAMPLES

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We are interested in the emergence of phase transitions in random fields when we condition on a part of the model. Simple examples demonstrate that such phase transitions can arise conditionally, even when no phase transition exists prior to conditioning. A general understanding of such phenomena is still lacking. Conditional phase transitions are closely related to the development of Monte Carlo algorithms for data assimilation that can surmount the curse of dimensionality, as well as to some classic measure-theoretic problems.