

# Phase Transitions in Neural Networks

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## Abstract:

Various simulations of cortical subnetworks have evidenced something like phase transitions with respect to key parameters. We demonstrate that, such transitions must, indeed exist, in analogous infinite array models. For related finite array models classical phase transitions (which describe steady-state behavior) may not exist, but, there can be distinct, qualitative changes in ("metastable") transient behavior as key system parameters pass through critical values.