

Characterizing (non)amenability through stochastic domination and finitary codings

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Consider the plus state of the Ising model at very low temperature on some graph. Does it stochastically dominate a high-density Bernoulli percolation? The answer depends drastically on the geometry of the graph. We'll discuss this and other questions of stochastic domination, and how amenability or lack thereof plays a crucial role.

A process is a finitary factor of iid if it can be written as a measurable and equivariant function of an iid process. Van den Berg and Steif showed that the plus state of the Ising model on an amenable graph is a finitary factor of iid if and only if it coincides with the minus state. In sharp contrast, we show that it is a finitary factor of iid at very low temperatures on a nonamenable graph.

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References

- [1] RAY, GOURAB AND SPINKA, YINON: *Characterizations of amenability through stochastic domination and finitary codings*, preprint, arXiv 2304.13784.