## Mathematics > Dynamical Systems

## Selection of measure and a Large Deviation Principle for the general XY model

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We consider $\$(\mathrm{M}, \mathrm{d})$ \$ a connected and compact manifold and we denote by $\$ \mathrm{X} \$$ the Bernoulli space $\$ \mathrm{M}^{\wedge}\{$ mathbb $\{\mathrm{N}\}\} \$$. The shift acting on $\$ \mathrm{X} \$$ is denoted by $\$$ lsigma $\$$.
We analyze the general XY model, as presented in a recent paper by A. T. Baraviera, L. M. Cioletti, A. O. Lopes, J. Mohr and R. R. Souza. Denote the Gibbs measure by $\$ \backslash m u \_\{c\}:=h \_\{c\} \backslash n u \_\{c\} \$$, where $\$ \mathrm{~h} \_\{c\} \$$ is the eigenfunction, and, $\$ \operatorname{lnu} \_\{c\} \$$ is the eigenmeasure of the Ruelle operator associated to \$cf\$. We are going to prove that any measure selected by \$1mu_\{c\}\$, as \$clto +linfty\$, is a maximizing measure for $\$ \$ \$$. We also show, when the maximizing probability measure is unique, that it is true a Large Deviation Principle, with the deviation function \$R_\{+\}^\{linfty\}=|sum_\{j=0\}^1infty $R \_\{+\}$(lsigma^f)\$, where $\$ R \_\{+\}:=1$ beta(f) + Vlcirclsigma - V - $\mathfrak{f}$, and, $\$ \mathrm{~V} \$$ is any calibrated subaction.

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