Ergodic properties of matrix equilibrium states

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Abstract

Equilibrium states of Hoelder continuous functions over the full shift have been investigated since the 1970s and have well-understood properties: they are mixing, have Bernoulli natural extensions, are fully supported, have positive entropy and satisfy a Gibbs inequality. In the last few years equilibrium states associated to matrix-valued potentials were introduced by Feng, Kaenmaki and others, motivated by applications to fractal geometry. However, beyond existence and a Gibbs property few properties of these measures are known. In this talk I will describe how properties of these equilibrium states - such as whether they are fully supported, have zero/full entropy, or are mixing - are related to algebraic properties of the semigroup generated by the underlying matrices.