Föllmer, Hans; **Orey, Steven**

Large deviations for the empirical field of a Gibbs measure. (English) Zbl 0648.60028

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Let S be a finite set and Ω the set of configurations $\omega : \mathbb{Z}^d \to S$. For $j \in \mathbb{Z}^d$, $\theta_j : \Omega \to \Omega$ denotes the shift by j. Let V_n denote the cube $\{i \in \mathbb{Z}^d : 0 \leq i_k < n,\ 1 \leq k \leq d\}$. Let μ be a stationary Gibbs measure for a stationary summable interaction. Define $\rho_{V_n}(\omega) = n^{-d} \sum_{j \in V_n} \delta_{\theta_j \omega}$.

The authors show that the sequence of measures $\mu \circ \rho_{V_n}^{-1}$ satisfies a large deviation principle with normalization n^d and the specific relative entropy $h(.;\mu)$ as rate function. Applying the contraction principle, they obtain a large deviation principle for the distribution of the empirical distributions.

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MSC:

60F10 Large deviations
60G60 Random fields

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stationary Gibbs measure; large deviation principle; empirical distributions

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