

论文

由Dvoretzky随机覆盖引起的集合的Hausdorff维数

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摘要: 考虑了单位圆 $T=R/Z$ 上的随机区间 $I_n(\omega)=\omega_n+(-I_n/2,I_n/2)\pmod{1}$,其中 $\{I_n\}_{n\geq 1}$ 为一列单调下降并趋于0的正实数, $\{\omega_n\}_{n\geq 1}$ 为 T 上的一列独立同分布且具有Gibbs分布测度的随机变量.借助于重分形分析中的工具,估计了被随机区间序列 $\{I_n(\omega)\}$ 有限次覆盖以及无穷多次覆盖的集合的Hausdorff维数.

关键词: 随机覆盖 Gibbs测度 局部维数 首中时

MSC2000 28A80; 37C45; 60D05

Hausdorff Dimension of Sets Arising from Dvoretzky Random Covering

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Abstract: We consider the random intervals $I_n(\omega)=\omega_n+(-I_n/2,I_n/2)\pmod{1}$, where $\{I_n\}_{n\geq 1}$ is a sequence of positive real numbers which is decreasing to zero and $\{\omega_n\}_{n\geq 1}$ is an i.i.d. sequence with Gibbs distribution measure on the circle $T= R/Z$. Using the tools from multi-fractal analysis, we estimate the Hausdorff dimension of sets which are covered finitely or infinitely many times by $\{I_n(\omega)\}$.

Keywords: random covering Gibbs measure local dimension hitting time

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