

Law of the Iterated Logarithm for a Random Dirichlet Series

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For an i.i.d. sequence $(X_n)_{n \in \mathbb{N}}$ of random variables with Bernoulli centered distribution, $\mathbb{P}(X_n = 1) = \mathbb{P}(X_n = -1) = 1/2$, we define the random Dirichlet series $F(\sigma) = \sum_{n=1}^{\infty} \frac{X_n}{n^\sigma}$, which converges when $\sigma > 1/2$. In this work we study the behavior of the function $F(\sigma)$, when $\sigma \rightarrow \frac{1}{2}^+$, providing a Law of the Iterated Logarithm (LIL), which describes the magnitude of the fluctuations of $F(\sigma)$. This is a joint work with Marco Aymone and Ricardo Misturini.