

Ergodic sums for hyperbolic maps

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Abstract:

Let $T : X \rightarrow X$ be an expanding map on the circle and let $f : X \rightarrow \mathbb{R}$ be a smooth function. The Birkhoff ergodic theorem describes the behaviour of the averages

$$\frac{1}{N} \sum_{i=0}^{N-1} f(T^i x)$$

along typical orbits, as N tends to infinity and the Central Limit Theorem describes the expressions

$$\frac{1}{\sqrt{N}} \sum_{i=0}^{N-1} f(T^i x).$$

We shall study the behaviour of the sums themselves: $\sum_{i=0}^{N-1} f(T^i x)$ as N tends to infinity. The results extend to Axiom A diffeomorphisms.

The talk will be fairly non-technical.