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MEB 246

Return Probabilities of Random Walks on Non- Amenable Groups

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A fundamental theorem of Harry Kesten asserts that the return probabilities of a random walk on a non-amenable group must always decay exponentially with the number of steps. Is there always a sharp asymptotic formula for the return probabilities, analogous to the Local Limit Theorem for random walks on \( \mathbb{Z}^n \)? If so, is the nature of the formula (in particular, the polynomial correction to the exponential factor) determined by the geometry of the group? We will review recent progress on these questions.

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