



Commuting time geometry of ergodic Markov chains

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We show how to map the states of an ergodic Markov chain to Euclidean space so that the squared distance between states is the expected commuting time. We find a minimax characterization of commuting times, and from this we get monotonicity of commuting times with respect to equilibrium transition rates. All of these results are familiar in the case of time-reversible chains, where techniques of classical electrical theory apply. In presenting these results, we take the opportunity to develop Markov chain theory in a 'conformally correct' way

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