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On Supercontractivity for Markov Semigroups

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摘要
关键词   Markov semigroup   logarithmic Sobolev inequality   supercontractivity   compact embedding

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On Supercontractivity for Markov Semigroups

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Abstract In this paper, we study the supercontractivity for Markov semigroups and obtain some sufficient and necessary conditions; especially explicit formulae are obtained for birth-death process and diffusion on the line. Sufficient conditions and necessary conditions in terms of isoperimetric inequalities are also presented. Moreover, we prove that the supercontractivity is equivalent to the compact embedding of Sobolev space into an Orlicz space.

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