MARKOV CHAIN APPROXIMATIONS TO NON-SYMMETRIC DIFFUSIONS WITH BOUNDED COEFFICIENTS

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We consider a certain class of non-symmetric Markov chains and obtain heat kernel bounds and parabolic Harnack inequalities. Using the heat kernel estimates, we establish a sufficient condition for the family of Markov chains to converge to non-symmetric diffusions. As an application, we approximate non-symmetric divergence forms with bounded coefficients by non-symmetric Markov chains. This extends the results by Stroock-Zheng to the non-symmetric divergence forms.

Joint work with Takashi Kumagai.