BOUNDS ON THE AUGMENTED TRUNCATION APPROXIMATIONS OF INVARIANT MEASURES FOR MARKOV CHAINS

Yuanyuan LIU *Central South University, China*, E-mail: liuyy@csu.edu.cn

Abstract: In this talk, we report some results about the augmented truncation approximations of invariant measures for Markov chains. Specifically, suppose that P is a positive recurrent infinite transition matrix with invariant distribution π and $_{(n)}\tilde{P}$ is a truncated and arbitrarily augmented stochastic matrix with invariant distribution $_{(n)}\pi$. We derive computable truncation bounds on $_{(n)}\pi - \pi$ with respect to a suitable vector norm from three aspects: the Poisson's equation, residual matrix and ergodicity coefficients. The arguments are mainly based on the technique of perturbation analysis. We give a comparison of these bounds, and we also compare our results with the ones in Tweedie (1998). Moreover, we consider the extension of the results to continuous-time Markov chains.

This is based on the joint work with Li Wendi.

References

1. R.L. Tweedie. Truncation approximation of invariant for Markov chains. *Journal of Applied Probability*, 1998, 517–536.