

Spectral Polynomial Algorithms for Computing Bi-diagonal Representations for Phase-type Distributions and Matrix-exponential Distributions

Qi-Ming HE, *Dalhousie University, Canada*, E-mail: Qi-Ming.HE@DAL.CA
Hanqin Zhang, *Chinese Academy of Sciences, P.R.China*

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Abstract: In this talk, we present two spectral polynomial algorithms for computing bi-diagonal representations for matrix-exponential distributions and phase type (PH) distributions. The algorithms only use information about the spectrum of the original representation and, consequently, are easy to implement and efficient. For PH-representations with only real eigenvalues, some conditions are identified for the bi-diagonal representations to be an ordered Coxian representation. It is shown that every PH-distribution with a symmetric PH-generator has an ordered Coxian representation of the same or a smaller order. An upper bound of the order of a PH-distribution with a triangular or symmetric PH-generator is obtained.