ITERATIVE AGGREGATION/DISAGGREGATION METHODS FOR COMPUTING SOME CHARACTERISTICS OF MARKOV CHAINS.
FAST CONVERGENCE.

Ivo Marek

Abstract

Motivated by modeling reliable safety of huge railway network systems by means of Markov chains some iterative aggregation/disaggregation methods (IAD) are proposed and analyzed. A particular attention is paid to the so called rare events and computation of their probabilities. Among the Markov chain characteristics stationary probability vectors, mean first passage times, covariance matrices etc. are considered. Convergence and the speed of convergence are of the main interest, in particular, fast convergent methods. Classes of problems are identified for which the IAD proposed terminate after a finite number of iteration sweaps.