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using phase-type modeling

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Dynamic assessment of multi-state systems using phase-type modeling

by

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Abstract

Multi-state systems have attracted great attention due to their wide applications in engineering. They have been effectively used in modeling various systems such as; power supply systems and transportation systems. In this paper, phase type modeling is proposed for dynamic assessment of nonrepairable multi-state systems when the system degrades according to a Markov process. The utility of phase type modeling is demonstrated in the computation of mean lifetimes, mean residual lifetimes, and derivation of survival functions of series and parallel systems. A stochastic comparison result between two systems is also obtained using phase representations of survival

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