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ESTIMATING MARKOVIAN TRANSITION PROBABILITIES FOR BRIDGE DETERIORATION FORECASTING

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In this paper, a methodology to estimate the Markovian transition probability model is presented to forecast the deterioration process of bridge components. The deterioration states of the bridge components are categorized into several ranks, and their deterioration processes are characterized by hazard models. The Markovian transition probabilities between the deterioration states which are defined for the fixed intervals between the inspection points in time, are described by the exponential hazard models. The applicability of the estimation methodology presented in this paper is investigated by the empirical data set of steel bridges in New York city.

Key Words: Markovian transition probability, bridge asset management, exponential hazard function, axedintervals

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