

Parametric inference for two imperfect repair models for gamma deteriorating systems

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SUMMARY

A system is considered, which is deteriorating over time according to a gamma process. The system is subject to periodic and instantaneous imperfect maintenance actions whose efficiency is measured through a parameter ρ . Each maintenance action removes a proportion ρ of the accumulated degradation either from the last maintenance action (order 1) or from the initial time (order ∞). This model is called *ARD* (*Arithmetic Reduction of Degradation*) model of order $p \in \{1, \infty\}$ and it is denoted by ARD_p . Given these models as well as the observation scheme, two classical estimation methods are considered and tested on simulated data sets in a parametric framework (Moments and Maximum Likelihood methods).

Keywords: imperfect repair models, degradation models, gamma processes

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