THE GEOMETRIC PROCESS MAINTENANCE MODEL

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Abstract: In this talk, a geometric process (GP) maintenance model for a repairable system is studied. Lam (1988a, b) introduced the GP which is a simple monotone process. For a deteriorating system, assume that the successive operating times form a decreasing GP, while the consecutive repair times constitute an increasing GP. For an improving system, assume that the successive operating times form an increasing GP, while the consecutive repair times constitute a decreasing GP. A replacement policy N is applied by which the system will be replaced by a new, identical one following the Nth failure. For the deteriorating system, an optimal replacement policy is determined analytically, and the monotonicity properties of the optimal replacement policy in each of the parameters in the model are then studied. For the improving system, we show that the optimal replacement policy is essentially a policy without replacement.

References

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