QUEUES WITH BREAKDOWNS AND CUSTOMER DISCOURAGEMENT

Wenyaw Chan
Robert Bartoszyński
Dennis Pearl

Abstract: This paper considers an $M/M/1$ queue with service breakdowns and customer discouragement. Each of the customers present in the system at the time of a breakdown may become discouraged and leave with a constant probability, independently of other customers. The system alternates between working and repair periods. Formulas are found for the expected queue size at the end of a working-repair cycle. The system is shown to have a stationary distribution if the probability of discouragement is positive.

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