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Summary: We investigate a Gaver’s parallel system sustained by a cold standby unit and attended by a repairman with a single vacation. By using $C_0$-semigroup theory and operator theory we study the spectral properties of the underlying operator corresponding to the system model and obtain that the time-dependent solution of the model strongly converges to its steady-state solution.

MSC:

35B40 Asymptotic behavior of solutions to PDEs
90B25 Reliability, availability, maintenance, inspection in operations research
47A10 Spectrum, resolvent

Keywords:

$C_0$-semigroup; eigenvalue; resolvent set; steady-state solution; time-dependent solution