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Stochastic analysis of a novel nonautonomous periodic SIRI epidemic system with random disturbances

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Highlights

- A novel stochastic nonautonomous periodic SIRI epidemic model with a new type of transmission function is proposed and investigated.
- We prove there is a unique global positive solution as desired in any population dynamics.
- Sufficient conditions for persistence in mean and extinction of the system are established.
- The existence of positive periodic solution of the system is proved.