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Analysis for stationary indices of discrete-time T-IPH/Geo/1 queue.


Summary: In this paper, we study a T-IPH/Geo/1 queue model, where T-IPH denotes the discrete-time phase type distribution defined on a birth and death process with countably many states. The queue model can be described by a quasi-birth-and-death process with countably phases. Using an operator-geometric solution method, we first give the expression of the operator and the joint stationary distribution. Then we obtain the steady-state distributions for the number of customers in the system, and the waiting time for an arbitrary customer.

Keywords: T-IPH/Geo/1 queue; joint stationary distribution; stationary queue length; stationary waiting time; quasi-birth-and-death process
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