

## **OPTIMAL RATE FOR A QUEUEING SYSTEM IN HEAVY TRAFFIC WITH SUPERIMPOSED ON-OFF ARRIVALS.**

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We consider a control problem for a queueing system with heavy-tailed On-Off process arrivals and constant-rate service (control). The control problem is to find the optimal value of the service rate which minimizes an infinite horizon discounted cost function. The main result of the paper guarantees the existence of an optimal rate as well as specifies an explicit range of possible values of this optimal rate. As a part of the analysis, we also formulated and solved an approximating control problem driven by fractional Brownian motion. A key ingredient of the proof (and a result of independent interest) is an asymptotic maximal bound on the second moment of the centered cumulative On-Off process, which is also derived.