Naumov V. A. (Helsinki, Finland), **Gaidamaka Yu. V.** (Moscow, Russia), **Samouylov K. E.** (Moscow, Russia). **Product-form Markovian multi-resource loss systems.**

Multi-resource loss systems are a generalization of classical Erlang Loss System in a way that arriving customer may require one or more types of limited resources. The loss system with the general cumulative distribution function of the requested quantity of a single resource was studied in [1]. Since that, a large number of papers analyze queueing systems with random resource requirements. The notion of positive and negative customers introduced in [2] has increased radically the scope of applications of queueing theory. In multi-resource loss systems arrivals of negative customers temporary increase the amount of resources available to positive customers [3]. We study multi-resource loss systems with positive and negative customers described by a homogeneous Markov jump process with state space $\mathcal{Y} = \{(i, \mathbf{x}) | i \in \mathcal{X}, \mathbf{x} \in R^{\nu(i)n}\}$. Here $\mathcal{X}$ is a finite phase space, $\nu(i)$ is the number of customers in the system, and n is the number of types of resources. Necessary and sufficient conditions at which the stationary probability distribution of the process has the form $P_i(A) = cp_i F_{\nu(i)}(A)$ are obtained.

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