Queueing Systems Special Issue in Stochastic matching models, matching queues and applications

Background

An economy of interactions and compatibilities. In the current boom of online services, internationally leading companies promote applications that offer their users an interface to interact and collaborate. We can think of the users as *members* gathered in *classes*, which use the application as an interface to find a *match*. To name a few, let us mention Uber apps, food delivery dispatching, online dating, collaborative apps, car and ride sharing, job search apps, etc. Matching mechanisms are also useful in many other physical systems, subject to compatibility constraints. At the utmost interest are blood transfusions and organ transplant networks, for which the blood types and immunological factors determine the compatibility.

Stochastic matching on graphs. All the aforementioned applications have a clear common ground: the arrivals of requests are *random*, and their sojourn in the system are finalized to finding a *match* (a date for next Saturday, a compatible kidney, a qualified cook for next evening, etc.), that is identified as such according to fixed compatibility rules. In all cases, the system controller aims at optimizing the waiting time of the requests before finding a match Depending on the application, one may also need to control the traffic to avoid congestion, or to design a pricing algorithm, and so on.

Scope

This special issue solicits papers that may contribute to advance the state-of-art in such stochastic matching model on graphs, and more generally, to the study of queueing systems with matching mechanisms. We welcome contributions from both the theoretical study of such systems: analysis of the geometry and structural properties of the underlying matching graphs, exact or approximate analysis of the underlying stochastic processes; and more practical aspects: optimization procedures,
analysis of allocation algorithms, and so on.

Submission Process

We request that manuscripts be submitted through the Queueing Systems web portal (link below). Please choose 'S.I.: Matching queues' to ensure that the manuscripts are directed toward the guest editors for handling the review process.

Submission Portal:

https://www.editorialmanager.com/ques/

Author Instructions:

http://www.springer.com/business+%26+management/operations+research/journal/11134

Guest Editors:

Jean Mairesse, CNRS and Université Pierre et Marie Curie.
Pascal Moyal, Université de Lorraine.

Important Dates:

Submission deadline: December 1, 2019
Reviews and Author Notification: June 15, 2020
Final Revision and Camera-ready version: October 15, 2020
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