

Multi-layer Markov Modulated Fluid Flow processes and Applications to Queues with Customer Abandonment

Qi-Ming He
Professor and Chair
Department of Management Science
University of Waterloo

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Abstract: In the first part of this talk, we review the basic theory and algorithms of multi-layer Markov modulated fluid flow (MMFF) processes. In particular, we discuss three basic quantities and present the stationary distribution of the MMFF processes. In the second part, we demonstrate how to use MMFF processes to analyze queueing models, including queueing systems with customer abandonment. (Joint work with Haoran Wu)

References:

1. Wu, Haoran and Qi-Ming He (2020). Double-Sided Queues with Marked Markovian Arrival Processes and Abandonment. *Stochastic Models* (accepted)
2. He, Qi-Ming and Haoran Wu (2020) Multi-Layer MMFF Processes and the MAP/PH/K+GI Queue: Theory and Algorithms. *Queueing Models and Service Management*, **3** (1), 37–87.

This talk is part of the School of Mathematical and Statistical Sciences Seminar Series, and will take place from 11:15AM to 12:05PM through Zoom: an invitation will be forwarded to everyone soon.