

**PROGRAM IN INDUSTRIAL & SYSTEMS ENGINEERING
IE 8773-8774**

Parallel Service Systems with General Service Time Distributions

by

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Wednesday, February 11, 2009
3:15 p.m. — Refreshments before the seminar
3:30 p.m. — Graduate Seminar
Rooms 4125A + 4125B Mechanical Engineering

ABSTRACT — Two fundamental stochastic models of parallel service systems, the limited processor sharing (LPS) queue and the multi-server queue, will be considered in this presentation. In both systems, up to a limited number of customers can be served in parallel at any time, with extra ones waiting in a first-in-first-out buffer. In the LPS queue, there is one server equally distributing its service capacity to customers in service; while in the multi-server queue, there are multiple servers with each one dedicated to a customer. The arrival process and the service time distribution are allowed to be general. We obtain insightful results on the performance of these systems through fluid and diffusion limits. The LPS systems are widely used in computer systems and communication networks, and the multi-server queue has applications in various models such as call centers and healthcare service delivery.

BIO — **Jiheng Zhang** is a Ph.D. candidate in the H. Milton Stewart School of Industrial and Systems Engineering at Georgia Institute of Technology. He is currently working as a pre-doctoral research associate in the Industrial Engineering Program at the University of Minnesota. Before entering Georgia Institute of Technology, he received a M.S. degree in mathematics from Ohio State University in 2003 and a B.S. degree in mathematics from Nanjing University in 2002. His research interests focus on service operations management and healthcare management. The methodology in his research includes stochastic processing networks, applied probability and stochastic optimization.

Host: Prof. William Cooper