

The Hong Kong University of Science and Technology
Department of Information Systems,
Business Statistics and Operations Management

Seminar Announcement

*Capacity Sharing and Cost Allocation among
Independent Firms in the Presence of Congestion.*

by

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Date: Monday, 26 April 2010

Time: 11:00 am – 12:00 pm

Venue: Room 4379, ISOM Conference Room (Lift 17/18)

~~~~~ All interested are welcome ~~~~~

**Abstract:**

We analyze the benefit of production/service capacity sharing for a set of independent firms. Firms have the choice of either operating their own production/service facilities or investing in a facility that is shared. Facilities are modeled as queueing systems with finite service rates. Firms decide on capacity levels (the service rate) to minimize delay costs and capacity investment costs possibly subject to service level constraints. If firms decide to operate a shared facility they must also decide on a scheme for sharing the costs. We formulate the problem as a cooperative game and identify a cost allocation that is in the core. The allocation rule charges every firm the cost of capacity for which it is directly responsible, its own delay cost, and a fraction of buffer capacity cost that is consistent with its contribution to this cost. In settings where unit delay costs are private information, the cooperative capacity sharing game becomes embedded with a non-cooperative information reporting game. We show how a cost allocation rule can be designed to induce all firms to report truthfully this information. Moreover, we show that, under this allocation rule, truth telling is a dominant strategy, with each firm reporting truthfully its private information regardless of the reporting decisions of other firms.

**Biography:**

Yimin Yu obtained his PhD degree from University of Minnesota. He holds a master degree from Boston University and a B.S degree from University of Science and Technology of China. His research interests include inventory management, revenue management, service operations and economic models.