



**THE CHINESE UNIVERSITY OF HONG KONG**  
Department of Information Engineering

*Seminar*

**How to Share Efficiently?  
From Sharing Economy to Network Design Problems**

by  
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**Date : 24 August, 2015 (Monday)**  
**Time : 11:00am - 12:00noon**  
**Venue : Room 833, Ho Sin Hang Engineering Building**  
**The Chinese University of Hong Kong**

*Abstract*

Sharing is everywhere, from sharing a ride, a room, to a communication link in a network. In particular, recent years have witnessed a popular rise of sharing economy (e.g., AirBnb, Uber). In this talk, I investigate the efficiency of diverse cost sharing mechanisms underlying a wide range of sharing activities. We consider a group of participants forming coalitions to share the expenses with an aim to minimize their individual payments. On one hand, the participants are self-interested who may not align with the social optimum. On the other hand, the collaborative nature of sharing promotes the notion of fairness of cost sharing among participants. We study the price of anarchy comparing the worst-case stable coalitions and the social optimum under different fair cost sharing solutions (e.g., egalitarian and Nash solutions of bargaining games, equal-split, proportional-split, Shapley value and usage based cost sharing). Especially, I focus on the applications for taxi-ride sharing and network design problems.

*Biography*

Sid Chi-Kin Chau is an assistant professor at the Masdar Institute in Abu Dhabi, UAE, which was created in collaboration with MIT. He researches in broad areas of networking, algorithms, and systems for sustainability and energy applications, including smart grid, smart buildings, and intelligent vehicles. Previously, He was a visiting scholar at MIT, a senior research fellow at A\*STAR in Singapore, and a Croucher Foundation research fellow at University College London, and a post-doctoral research associate at University of Cambridge. He received the Ph.D. from University of Cambridge and B.Eng. from Department of Information Engineering, the Chinese University of Hong Kong.

**\*\* ALL ARE WELCOME \*\***

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