For favour of Posting

THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

PHD STUDENT SEMINAR

TTC in School Choice: A Pareto-Efficient and Strategy-Proof Mechanism with Minimal Justified Envy

By

Mr. Lizhong CHEN

Abstract

Important resources such as housing, organs, and school seats are allocated based on the participants' preferences and their priorities. Two prominent mechanisms used for priority-based matching are Gale and Shapley's (1962) deferred acceptance (DA) and Gale's top trading cycles (TTC) (Shapley and Scarf 1974). Both mechanisms are strategy-proof: truthful reporting of preferences is a weakly dominant strategy for agents. DA eliminates justified envy, i.e. no agent prefers another assignment over her assignment and has a higher priority than someone else assigned to the preferred assignment. TTC is Pareto efficient.

Roth (1982) showed that no mechanism is Pareto efficient and without justified envy. Gale and Shapley (1962) showed that DA is constrained optimal since the DA matching weakly Pareto dominates any other matching without justified envy. In contrast, there are many Pareto-efficient and strategy-proof mechanisms. Does TTC provide a comparable constrained-optimal solution but with regard to elimination of justified envy? We aim to provide an answer to this question.

Date : 9 May 2025 (Friday)
Time : 2:00pm
Venue : Room 5510 (near Lifts 25/26)

All are Welcome!