



香港中文大學
The Chinese University of Hong Kong

Institute of Theoretical Computer Science and Communications

ITCSC Colloquium

Stability vs. Cost of Matchings

By

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3:30 pm – 4:30 pm

Rm. 121, 1/F., Ho Sin Hang Engineering Building, CUHK

Abstract:

My talk connects two classic approaches regarding graph matchings. In his seminal 1965 paper, Jack Edmonds presented an algorithm that finds a maximum matching in a graph in polynomial time. Building upon his work, Lovasz and Plummer developed an efficient combinatorial algorithm for the weighted case, which can also be used to compute a minimum-cost perfect matching in complete graphs. In another seminal paper published a few years earlier in 1962, David Gale and Lloyd Shapley introduced the notion of a stable matching, and presented a polynomial time algorithm that computes one in a bipartite setting. Whereas Edmonds, and Lovasz and Plummer give a globally optimal solution for the matching problem, Gale and Shapley essentially compute a locally optimal solution, as no pair of nodes is unstable in the sense that they rather be matched to each other than their current partners. In my talk I will discuss whether there is a trade-off between the global and the local optimization problem. This is joint work with Yuval Emek and Tobias Langner.

Biography:

Roger Wattenhofer's research interests are a variety of algorithmic and systems aspects in computer science and information technology, currently in particular wireless networks, multi-core systems, peer-to-peer computing, and social networking. He publishes in different communities: distributed computing (e.g., PODC, SPAA, DISC), networking (e.g., MobiCom, MobiHoc, SenSys, IPSN, HotNets), or theory (e.g., STOC, FOCS, SODA, ICALP).

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