Some efficient algorithms for the k-vertex cover problem

Yijia Chen
Shanghai Jiao Tong University

Time: 11:00–12:00 (Time in Beijing)
15:00–16:00 (Time in Auckland)
May 20, 2021 (Thursday)
Venue: B1–501, Main Building

Abstract: Let k be a fixed constant. The k–vertex cover problem asks, for an input graph G, whether G contains k vertices which intersect every edge in G. The problem has been studied extensively both in theory and practice. In fact, when k is a part of the input, the problem becomes NP–hard. So it might seem that the trivial n^{O(k)}–time algorithm is the best we can achieve. However, in this talk, I will discuss various techniques to design much better algorithms for the k–vertex cover problem, showing that it is solvable in linear time. Moreover, on a massive parallel computer, the problem can be even decided in merely 34 steps.

Speaker Bio: 陈翌佳现为上海交通大学计算机系教授。他在上海交通大学获得软件计算与理论博士学位，在德国弗莱堡大学获得数学博士学位。他的研究领域是逻辑、计算复杂性以及算法图论。他目前担任国际期刊《Logic Methods in Computer Science》和《Theory of Computing Systems》编委。

Chengdu Algorithms and Logic Seminar is a series of online seminars organized by School of Computer Science and Engineering, University of Electronic Science and Technology of China, and School of Computer Science, University of Auckland that aims to promote collaborations in a broad range of topics in algorithms and logic.

Organizers: Bakhadyr Khoussainov, Jiamou Liu, and Mingyu Xiao
Email: myxiao@gmail.com (Mingyu Xiao)