

Spring 2016 Seminar Series

SPECTRAL ALGORITHMS FOR LARGE GRAPHS: WHERE THEORY AND PRACTICE MEET

MONDAY, MARCH 21, 2016

10:00 AM – HEC 450

We will discuss recent progress in the theory and algorithms for three related problems: graph sparsification, graph partitioning and linear system solving. The combined effect of these advances has led to very fast 'spectral' algorithms that are provably near-optimal and have been successfully applied to problems on graphs with millions of nodes.

These recently discovered algorithms constitute an evolution of heuristics that were previously introduced and pursued in various applied contexts. In turn, their enhanced effectiveness enables further experimentation that potentially opens the way to new applications in data science, as well to new theoretical discoveries. We will thus argue that spectral algorithms are an exemplary case of a successful synergy between theory and practice.

DR. IOANNIS KOUTIS
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Ioannis Koutis is an associate professor in the Computer Science department at the University of Puerto Rico, Rio Piedras. He holds a PhD in Computer Science from Carnegie Mellon University and a Diploma in Computer Engineering and Informatics, from the University of Patras. He is broadly interested in algorithm design. He is a co-inventor of the fastest known algorithm for solving an important class of linear systems. He has also contributed in the area of parameterized algorithms for hard combinatorial problems, by introducing a general framework that has produced the fastest known algorithm for numerous problems. In 2012, Ioannis Koutis received an NSF CAREER award.

Hosted by: Dr. Mark Heinrich

