

Seminar

Speaker: [Daniel Lokshtanov](#)
(University of Bergen)

Title: News from the width world

Date: Friday, 26 Oct 2012

Time: 18:15-19:30

Location: [Univeristy of Athens,](#)
[Department of](#)
[Mathematics, University](#)
[of Athens, room Γ33](#)

Abstract

Graph decomposition methods are at the core of algorithmic graph theory. Tree-width and clique-width are central notions in the theory of graph decomposition, and it has been shown that a multitude of problems enjoy fast algorithms when the input is restricted to graphs whose tree-width or clique-width is small. Most such algorithms are based on dynamic programming over the decomposition, and up until just a few years ago there were basically no improvements over the "naive" dynamic programming algorithms for graphs of bounded clique-width or tree-width.

Over the recent years we have seen a number of results showing that many of the naive dynamic programming algorithms for graphs of bounded tree-width and clique-width are optimal, under reasonable complexity theory assumptions. These lower bound results were subsequently complemented by surprising and elegant improvements over the "naive" dynamic programs. In this talk i will survey the state of the art of lower- and upper-bounds on the running time of algorithms on decomposable graphs.

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