

Hello everyone,

The next graph theory seminar will take place on Wednesday Dec. 7, from 3:30-4:30 at seminar room (chase 227). Below is the title and abstract.

Hope to see you all there.

Title: Randomized algorithms and upper bounds for multiple domination in graphs and networks

Speaker: Andrei Gagarin (Acadia University)

Abstract:

Domination in graphs is a fundamental concept with various applications to networks, e.g., facility location problems in Operations Research or when searching for sets of representatives. We consider four different types of multiple domination and provide new improved upper bounds for the  $k$ - and  $k$ -tuple domination numbers. The new bounds generalize two classical upper bounds for the domination number and are better than a number of known upper bounds for these two multiple domination parameters. Also, we explicitly describe and systematize efficient randomized algorithms for finding multiple dominating sets, whose expected orders satisfy the new and recent upper bounds. The algorithms can be implemented in parallel or as local distributed algorithms. The corresponding multiple domination problems are known to be NP-complete. (Joint work with Vadim Zverovich, University of the West of England, Bristol, U.K.)