

VCU Discrete Mathematics Seminar

A Linear Programming Based Approximation Algorithm for the Maximum Agreement Forest

Prof Frans Schalekamp
College of William & Mary

Tuesday, November 18

12:30–1:20

4119 Harris Hall

Consider the following graph theoretic problem: We are given two rooted trees with the same leaf sets as input, and want to find the minimum number of edges to cut from both trees, so that the components after cutting these edges have the same structure (modulo edge contractions).

This problem is known as the Maximum Agreement Forest Problem, and has its roots in biology and genetics, where the solution to the problem is proposed as a measure to compare phylogenetic trees. Not surprisingly, this problem is NP-hard.

I will illustrate how to devise an approximation algorithm by talking about a novel algorithm for the Maximum Agreement Forest Problem. Concepts from previous talks in the discrete math seminar this semester will make cameo appearances.

This is joint work with Anke van Zuylen, Neil Olver, Suzanne van der Ster and Leen Stougie.



For more information on our fall schedule, see:
<http://www.people.vcu.edu/~dcranston/DM-seminar/>