

Discrete Mathematics Seminar

Gábor Sárközy
WPI

Title: Rainbow matchings (or transversals in Latin squares)

ABSTRACT: Rainbow matchings (or equivalently transversals in Latin squares) have received a lot of attention. We'll mention some conjectures and results. In particular, we'll prove the following result. If a bipartite multigraph G is the union of $(2n-1)$ matchings of size n , then G contains a rainbow matching (where each edge comes from a different matching) of size n . Alon observed, that this immediately implies the classical Erdos-Ginzburg-Ziv theorem in number theory.
Joint work with J. Barat and A. Gyarfás.

Tuesday, November 13, 2018
3:00PM-3:50PM
Stratton Hall 203

Virtual Combinatorics Colloquium

Vic Reiner
University of Minnesota

Title: Cyclic Sieving: Old and New

ABSTRACT: Cyclic sieving, identified in work with Dennis Stanton and Dennis White, is a happy situation, where counting how many among some objects enjoy cyclic symmetry is as easy as q -counting all of the objects. We will illustrate this with two kinds of examples: old ones that still plague us with only un insightful proofs, and new ones that have joined our list of favorites.

Wednesday, November 14, 2018
4:00PM-6:00PM
Stratton Hall 106

Undergraduate Math Research Showcase

Presentations and discussions of research, graduate school, and the post-graduate experience. Research projects presented by eight undergraduate WPI students. WPI Alum Michael Smith will be speaking on his preparation for graduate school at the University of California Berkeley. Refreshments and food will be provided.

Student presenters: Alexandra Auteri, Philip Heikoop, Caroline Johnston, Leah Mitchell, Alissa Ostapenko, Sarah St. Pierre, Michael Warms, Tom Yi

Wednesday, November 14, 2018
5:00PM-7:00PM
Olin Hall 107

Analysis and PDE Seminar Series

Michael Smith
UC Berkeley

Integral Ricci curvature bounds for possibly collapsed spaces with Ricci curvature bounded from below

ABSTRACT: Assuming a lower bound on the Ricci curvature of a complete Riemannian manifold, for $p < 1/2$ we show the existence of a bound on the local L_p norm of the Ricci curvature that depends only on the dimension and which improves with volume collapse.

Thursday, November 15, 2018
12:00PM-1:00PM
Salisbury Labs 104

Colloquium

Jiashun Jin

Carnegie Mellon University

Co-authorship and Citation Networks of Statisticians

ABSTRACT: We have collected a data set for the networks of statisticians, consisting of titles, authors, abstracts, MSC numbers, keywords, and citation counts of papers published in representative journals in statistics and related fields. In Phase I of our study, the data set covers all published papers in 36 journals in statistics and related fields, spanning 40 years. The data sets motivate an array of interesting problems in social networks, topic learning, and knowledge discovery.

In the first part of the talk, I will discuss the problem of network membership estimation. We propose a new spectral approach called Mixed-SCORE, and reveal a surprising simplex structure underlying the networks. We explain why Mixed-SCORE is the right approach and use it to investigate two networks constructed from the Phase I data.

In the second part of the talk I will report some Exploratory Data Analysis (EDA) results including productivity, journal ranking, topic learning, and citation patterns. This part of result is based on Phase II data.

Friday, November 16, 2018
11:00AM - 12:00PM
Stratton Hall