



KENNESAW STATE
UNIVERSITY

COLLEGE OF SCIENCE AND MATHEMATICS

Department of Mathematics

Discrete Mathematics Seminar¹

Friday, February 05, 2021
2:30–3:30pm (Microsoft Teams)

Title: *Comparisons, edge coloring, and the Erdős-Szekeres theorem*

Speaker: Dr. Mikhail Lavrov, Assistant Professor, Department of Mathematics, Kennesaw State University

ABSTRACT: This talk is motivated by the Erdős-Szekeres theorem on monotone subsequences: given a sequence of $rs + 1$ distinct numbers, there is either a subsequence of $r + 1$ of them in increasing order, or a subsequence of $s + 1$ of them in decreasing order.

We'll consider many related questions with an algorithmic flavor, such as: if we want to find one of the subsequences promised, how many comparisons do we need to make? What if we have to pre-register our comparisons ahead of time? Does it help if we search a longer sequence instead?

Some of these questions are still open; some of them have answers. The results I will discuss are joint work with Jozsef Balogh, Felix Clemen, and Emily Heath from UIUC.

¹The Discrete Mathematics Seminar (DMS) is intended for Kennesaw State faculty working in the various areas of algebra, number theory, and discrete mathematics to get together to discuss their current work or related questions. Seminars often involve advanced mathematical knowledge. However, the seminars are open to anyone who is interested in attending.