



Time: Tuesday, November 28, 2023, 12:30-1:15pm

Location: Parker Building 301

Speaker: Megan Bennett
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Title: 1324-Avoiding (0,1)-Matrices

Abstract: A 1324-avoiding (0,1)-matrix is an $m \times n$ matrix that does not contain the 1324-pattern. Our goal is to find the maximum number of 1's that an $m \times n$ 1324-avoiding (0,1)-matrix can contain. We build upon Brualdi and Cao's recent work, where they characterized the $m \times n$ 1234-avoiding matrices with the maximum number of 1's. They found that these matrices can contain up to $3(m + n - 3)$ 1's. We originally conjectured that 1324-avoiding matrices must contain at most the same number of 1's, as is the case with the six patterns formed by permutations of $\{1, 2, 3\}$. However, we have found 1324-avoiding matrices that contain more 1's than those that are 1234-avoiding, and we provide a conjecture for the maximum number of 1's that a 1324-avoiding matrix can contain.

The entire NSU community, including students at all levels of mathematics, is invited and encouraged to attend.