1173-05-65 **Michael Albert**, **Christian Bean**, **Anders Claesson**, **Émile Nadeau**, **Jay Pantone*** (jay.pantone@marquette.edu) and **Henning Ulfarsson**. *Combinatorial Exploration: A New Approach to Enumeration.* Preliminary report.

Combinatorial structures are ubiquitous throughout mathematics. Graphs, permutations, words, and other such families of combinatorial objects often play a central role in work from many different fields. The study of enumerative combinatorics is concerned with the elucidation of structural properties of these families, including counting, classification, and limiting behavior.

Combinatorial Exploration is a framework that unifies the often ad-hoc methods used in enumerative combinatorics. In this talk we'll explain how Combinatorial Exploration works, how it can be automated, and how it's being applied to the study of pattern-avoiding permutations to prove new results and reprove dozens of old ones. (Received September 14, 2021)