ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

Invitation to the Colloquium

Dr. Benjamin Hackl
Universität Klagenfurt

"Flip-Sorting and Step-Changing Lattice Walks, or: Asymptotic Counting and Analytic Properties via Algebraic Classification"

N.2.01 | Wednesday, 11 September 2019 | 5:30 p.m.

Abstract

Within analytic combinatorics the asymptotic growth of discrete structures is analyzed by investigating the analytic properties of the corresponding generating function. However, often such a generating function is not available explicitly, but only in form of a functional or differential equation. In these cases, an algebraic classification of the underlying counting sequence can help to provide qualitative results on the asymptotic growth – and thus enable a rigorous analysis based on a "guess and prove"-type strategy.
In this talk we discuss basic algebraic classes for counting sequences as well as their implications for the associated analytic and asymptotic properties of the discrete structure under investigation. Furthermore, we illustrate this technique based on recent research questions from two different areas: the so-called Flip-Sort Process for permutations on the one hand, and lattice walks in the plane with a certain twist on the other hand.

Clemens Heuberger and the Department of Mathematics look forward to seeing you at the talk!