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FAKULTÄT FÜR MATHEMATIK
Dekan Univ.-Prof. Dr. Radu Ioan Bot

Einladung zur öffentlichen Defensio von

Hans Höngesberg

Thema der Dissertation

The Monotone Triangle Perspective on Alternating Sign Arrays

Abstract: In the early 1980s, Mills, Robbins, and Rumsey conjectured a simple product formula for the number of alternating sign matrices, which remained unproven for over a decade. The conjecture was first proved by Zeilberger in 1996 using constant term expressions. Shortly thereafter, Kuperberg presented a shorter proof exploiting methods from statistical mechanics which have since become the dominating techniques in the research of alternating sign arrays. Fischer, however, initiated a new approach to enumerating alternating sign arrays by establishing an operator formula for monotone triangles. In my doctoral thesis, I use the monotone triangle perspective to study alternating sign trapezoids.

In this talk, I will present an overview of the three problems my thesis is mainly concerned with: First, establishing a refined enumeration of four statistics on alternating sign trapezoids as well as on column strict shifted plane partitions of a fixed class with corresponding joint distributions. Secondly, constructing in a special case weight-preserving bijections between these classes of objects. Finally, proving an operator formula for halved monotone triangles in order to derive constant term expressions for the weighted enumeration of vertically symmetric alternating sign trapezoids.

Prüfungssenat:

Univ.-Prof. Mag. Dr. Andreas Cap
(Vorsitz)
(Universität Wien)

Univ.-Prof. Mag. Dr. Ilse Fischer, Privatdoz.
(Universität Wien)

Prof. Dr. Jessica Striker
(North Dakota State University)

Prof. Dr. David Bressoud
(Macalester College)

Zeit: Freitag, 11 Juni 2021, 16:00 Uhr

Ort:

Join Zoom Meeting

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Meeting ID: 934 9140 1859 Passcode: 902202