Fakultät für Mathematik

universität wien

Mathematisches Kolloquium

EINLADUNG

Prof. Mag.ª Dr. Ilse Fischer

(Universität Wien)

"Proof of the DASASM-conjecture"

Anschließend vinum cum pane

"Proof of the DASASM-conjecture"

Abstract:

An alternating sign matrix (ASM) is a square matrix in which each entry is 0,1 or -1, and along each row and column the nonzero elements alternate in sign and have a sum of 1. In the early 1980s, Robbins and Rumsey conjectured that the number of n x n ASMs is $\prod_{i=0}^{n-1} \frac{(3i+1)!}{(n+i)!}$. Proofs of this result are not quite as simple as the formula, in fact the first proof (due to Zeilberger) is 84 pages long. Stanley and Robbins also initiated the systematical study of the enumeration of ASMs invariant under the action of subgroups of the symmetry group of the square as it turned out that many of these symmetry classes are also conjecturally enumerated by simple product formulas. The program of proving these conjectures was completed by work of Kuperberg, Okada, and Razumov and Stroganov in 2006 -- with the exception of diagonally and antidiagonally symmetric alternating sign matrices (DASASMs) of odd order. We have recently proven this last conjecture and it is the purpose of the talk to describe its proof. Important ingredients are the six-vertex model, the Yang-Baxter equation, reflection equations and Schur functions. This is joint work with Roger Behrend and Matjaz Konvalinka.

Zeit: Mittwoch, 27. Jänner 2016
15.45 Uhr Kaffeejause,
16.15 Uhr Vortrag

Ort: Fakultät für Mathematik,
Oskar-Morgenstern-Platz 1,
Sky Lounge

Harald Rindler