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Leibniz  
Universität  
Hannover

# Oberseminar

## zur

# Algebra und Algebraischen Kombinatorik

**Dr. Darij Grinberg**  
(University of Minnesota)

## “Multiline queues and their generating functions”

Multiline queues were introduced by Ferrari and Matrin as a tool for understanding the steady state of the Totally Asymmetric Simple Exclusion Process (TASEP) on a ring. Yet they have met independent interest as combinatorial objects. A queue can be described as a transformation of words by a combinatorial rule (related to the Lascoux–Schützenberger action of the symmetric group). A multiline queue is merely a tuple of queues and can be applied to a word by successively applying each of the queues to it. This allows for the definition of a generating function for each given word that sums over all multiline queues that give rise to this word. We prove a symmetry property that lets us explicitly compute this generating function as a Jacobi–Trudi–type determinant in a special case, proving a conjecture by Aas and Linusson. As a consequence of this symmetry, we prove a conjecture by Arita, Ayyer, Mallick and Prolhac about operators related to the TASEP.

The talk is based on a paper in progress: <http://www.cip.ifi.lmu.de/~grinberg/algebra/mlqs.pdf>  
(joint work with Erik Aas and Travis Scrimshaw).

**Donnerstag, 28.06.2018**  
**ab 14:15 Uhr, a410**

Hauptgebäude der Leibniz Universität Hannover

Alle Interessierten sind herzlich eingeladen.

Institut für Algebra, Zahlentheorie  
und Diskrete Mathematik