



Kolloquium über Reine Mathematik

Einladung zu einem Vortrag

Dienstag, 23. Januar 2018

17 Uhr s.t., Geom H4

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Partitions and pictures of posets and preorders: a Hopf algebraic viewpoint

Abstract:

In the seminal work of 1972, Richard Stanley gave a generalization to posets of semistandard tableaux associated to diagrams of partitions, and to its generating functions, going from Schur functions and symmetric functions to the world of quasi-symmetric functions. Since then - following Rota's philosophy of the central role of coproducts in combinatorics - many different and fundamental Hopf algebra structures were studied in connection to it: The Malvenuto-Reutenauer Hopf algebra of permutations, the Connes-Kreimer Hopf algebra on trees, different Hopf structures on posets, on quasi-symmetric functions, on packed words, etc.

Furthermore, the theory of pictures between posets is known to encode much of the combinatorics of symmetric group representations and related topics such as preorder diagrams and tableaux: It captures for example the Littlewood-Richardson formula, as already shown by Zelevinsky. In 2011, we extended it to double posets (pairs of orders coexisting on a given finite structure). Recently we worked out a similar approach for finite preorders, which in turn are equivalent to finite topologies, and developed it from the point of view of combinatorial Hopf algebras, leading to new advances in the field. (Joint work with Loïc Foissy and Frédéric Patras).

Vor dem Vortrag (ab 16.30 Uhr) stehen im Raum 327 Kaffee und Tee bereit.