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The lattice of noncrossing partitions via representation theory of quivers

Associated to any finite reflection group, there is a combinatorial object called the lattice of noncrossing partitions. In type A, these are just the classical noncrossing partitions. In this talk, I will discuss a new approach to the lattice of noncrossing partitions for crystallographic reflection groups, using the representation theory of quivers. This approach yields a new proof that the noncrossing partitions do indeed form lattices for these groups (a result proved in a type-free way for the first time earlier this year by Brady and Watt), and also clarifies connections between noncrossing partitions, clusters, and other related objects.

This is joint work with Colin Ingalls.