Nilpotent commutator of a nilpotent matrix

Leila Khatami
Union College--Union University

It is well-known that a nilpotent n xn matrix B is determined up to conjugacy by a partition of n formed by the sizes of the Jordan blocks in the Jordan canonical form of B. We call this partition the Jordan type of B.

In the recent years several authors have worked on the following problem:
for any partition P of n describe the type Q(P) of a generic nilpotent matrix commuting with a given nilpotent matrix of type P. In this talk we give an overview of the results on this problem obtained by studying the combinatorics of a poset associated to the partition P.