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Julianna Tymoczko* (jtymoczko@smith.edu), Department of Mathematics and Statistics, Smith College, Northampton, MA 01063. *The combinatorics of nilpotent orbits and Springer fibers.*

In this survey talk, we describe the combinatorics of nilpotent orbits and Springer fibers. In type A_n the conjugacy classes of nilpotent $n \times n$ matrices are parametrized by partitions (from the decomposition of the matrix into Jordan blocks). These partitions in turn can be used to compute the dimension of the conjugacy class and to obtain information about its closure.

If we use the right conventions, Springer fibers come from the intersection of a particular nilpotent orbit with the upper-triangular matrices, projected down to the full flag variety. Some of the combinatorics of nilpotent orbits translates directly to this setting, while other parts are modified in interesting ways.

We describe these and other phenomena, including some open questions. Time permitting, we will also discuss other Lie types briefly. (Received July 19, 2016)