

# Combinatorics and Geometry — Seminar —

## REPRESENTATIONS OF THE SYMMETRIC GROUP, SPRINGER FIBERS, AND KNOT INVARIANTS

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### Abstract

The goal of this expository talk is to discuss in an extended example how the categorification of natural structures in representation theory relates to geometry, combinatorics and topology. More specifically, we discuss a categorification (due to Khovanov) of the two row representation of the symmetric group whose dimension is equal to the  $n$ -th Catalan number, and relate this categorification to the geometry of the Springer resolution and to invariants of knots in the three-sphere.

Wednesday, November 14

5:15 p.m.

Room 381-U

<http://math.stanford.edu/~sampayne/seminar/>