



THE UNIVERSITY OF CHICAGO

Departments of Mathematics and Statistics
ALGEBRAIC GEOMETRY SEMINAR

LUKE OEDING

Department of Mathematics
University of California, Berkeley

Hyperdeterminants of Polynomials

TUESDAY, October 23, 2012, from 4:30–6:00 PM
312 Eckhart Hall, 5734 S. University Avenue

ABSTRACT

Hyperdeterminants were brought into a modern light by Gelfand, Kapranov, and Zelevinsky in the 1990's. Inspired by their work, I will answer the question of what happens when you apply a hyperdeterminant to a polynomial (interpreted as a symmetric tensor).

The hyperdeterminant of a polynomial factors into several irreducible factors with multiplicities. I identify these factors along with their degrees and their multiplicities, which both have a nice combinatorial interpretation. The analogous decomposition for the discriminant of polynomial is also found. The methods I use to solve this algebraic problem come from geometry of dual varieties, Segre-Veronese varieties, and Chow varieties; as well as representation theory of products of general linear groups.

Organizers:

For further information on this event, please email Lek-Heng Lim at lekheng@galton.uchicago.edu or Madhav Nori at nori@math.uchicago.edu.

UCAGS Seminar URL: <http://www.stat.uchicago.edu/~lekheng/ag.html>