JOCHEN KUTTLER, University of Alberta
Tensors of bounded rank are defined in bounded degree

The notion of tensor (border) rank of elements of the p-fold tensor product of a vector space with itself appears naturally in various areas like algebraic statistics, algebraic geometry, or complexity theory. The variety of tensors of a given border rank is relevant in these contexts. In the elementary case of $p = 2$, these varieties are of course nothing but the rank varieties of square matrices, and for rank k their ideals have generators in degree $k+1$ (the $(k+1) \times (k+1)$ subdeterminants), irrespective of the size of matrices.

In this talk I will present a qualitative generalization of this result. Using symmetries of these rank varieties we approach the case of border rank k for all p simultaneously and show that the rank k-variety is generated in a degree d independent of p.

This is joint work with Jan Draisma.