Normalized Sparse Resultants

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Sparse resultants were introduced by Gelfand, Kapranov and Zelevinsky in the 90's as an extension of the classical (from the times of Cayley and Macaulay) resultant, by performing elimination theory on some specific toric varieties determined by the nonzero exponents appearing in the polynomial expansion of the input (the classical resultant has as underlying variety the projective space). Standard properties of classical resultants can be extended to the sparse context, although the formalism gets more complicated as one has to keep track of both combinatoric and geometric aspects of the underlying toric variety and also the "position" of these polynomials with respect to the variety. So it is not surprising that there are several incorrect and/or vague statements concerning these aspects in the literature.

In this talk, we will present an alternative notion of sparse resultants. We will show that this notion is a particular case of the resultant of a multiprojective toric cycle, and how some properties like the "product formula" or the "Poisson formula" can be extended for sparse resultants in a straightforwardly way.

This is joint work with Martin Sombra.