László Fehér

Title: Hypersurfaces with given singularities using Thom polynomials

Abstract: Joint work with Ákos Matszangosz

The following Plücker-type enumerations are now well understood: Given a generic degree d projective hypersurface what is the number of lines intersecting a fixed i-dimensional subspace and the hypersurface with given multiplicity?

The next step is to study the intersections with k-dimensional subspaces. One natural question is to count the k-spaces intersecting in a hypersurface with a given (function) singularity. These numbers can be calculated from the Thom polynomial of the singularity.

Thom polynomials of function singularities are less studied than Thom polynomials in non-negative relative codimension. First I tell what is known and show that they have a polynomial stabilization property similar to the Thom series in non-negative relative codimension.

In the second part of the lecture I explain how to apply these results on Thom polynomials to obtain answers for the enumerative problems above. I mention what would be the next step towards a similar theory for complete intersections.