

# The UIC Algebraic Geometry Seminar

## NUMERICAL PRIMARY DECOMPOSITION

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The existing methods of *numerical algebraic geometry* give a way to decompose an affine complex variety  $X$  into irreducible components. The collection of numerical presentations for these components corresponds to minimal primes associated to the defining ideal  $I = I(X)$  of the variety.

We propose a method to find embedded components of  $I$ . Moreover, we give a numerical description of the scheme  $\text{Spec}(I)$  by means of *numerical primary decomposition*. This description, in particular, solves the ideal membership problem for the ideal  $I$ .

The main ingredient is the construction of a *deflated variety* in a higher-dimensional ambient space, which is related to higher Nash blowups.

SEO 712  
Monday, October 15th  
3:00 p.m.

<http://www.math.uic.edu/~coskun/f2007alggeom.html>