Andrew Sommese* (sommese@nd.edu), Department of Mathematics, University of Notre Dame, Notre Dame, IN 46556-4618. A Numerical Local Dimension Test for Algebraic Sets.

This talk will discuss a recent numerical algorithm of Daniel Bates, Jonathan Hauenstein, Chris Peterson, and myself to compute the dimension at a point of the zero set $X$ of a system of polynomials $f_1(z), \ldots, f_n(z)$ on $\mathbb{C}^N$, where $N$ and $n$ may be different. This algorithm allows effective computation of the irreducible decomposition of $X$ for significantly larger $n$ and $N$ than current methods. (Received September 10, 2008)