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**Andrew Sommese\*** ([sommese@nd.edu](mailto: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  $f_1(z), \dots, f_n(z)$  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)