1014-14-214 **Andrew J Sommese*** (sommese@nd.edu), Department of Mathematics, University of Notre Dame, Notre Dame, IN 46556-4618, and **Charles W Wampler**. *Exceptional Sets and Fiber Products.*

This talk explains how fiber products may be used to numerically compute important sets associated to polynomial systems with parameters.

The solution set of a polynomial system with algebraic parameters may be regarded as a family of algebraic sets. The operation of taking fiber products applies to such families, thereby generating new algebraic sets that are the solution sets of polynomial systems derived in a simple manner from the original system. The irreducible decompositions of the derived systems lay out the structure of exceptional sets of the solution set of the original family of systems, i.e., sets where the dimension of the solution set is greater than it is for generic values of the parameters.

Algorithms are given with some discussion of problems that the methods apply to. (Received August 23, 2005)