Meeting: 1001, Evanston, Illinois, SS 9A, Special Session on Solving Polynomial Systems

1001-65-146 **Hong Zhang*** (hzhang@mcs.anl.gov), Building 221, Rm D-256, MCS, Argonne National Laboratory, Argonne, IL 60439-4844. *Solving Multivariate Polynomial Systems.*

Solutions of multivariate polynomial systems form a fundamental computational kernel in science and engineering. The current approach involves symbolic transformation and numeric processing. At present, the numerical sensitivity, not the computing power, is the primary obstacle encountered by the scientists in the field of solving polynomial systems.

In this talk, I will present our research results in solving multivariate polynomial systems. First, visualization tools are used to aid sensitivity analysis. The analysis provides insights and better understanding of the problems. Based on the analysis, a hybrid symbolic and numeric algorithm is proposed and developed. (Received August 21, 2004)