Topics and Trends in Current Research Mathematics

Lectures on Pure and Applied Math

Announcing

A Mathematics Seminar
March 6, 2009 at 2:00 pm
Southern Hall 303

at The University of Southern Mississippi

Speaker: Chih-HsiungTsai

Department of Mathematics
University of Southern Mississippi

Title: Algorithms for Solving Polynomial Systems by Homotopy Continuation Method and Its Parallelization

Abstract:

HOM4PS-2.0 is a software package in FORTRAN 90 which implements the polyhedral homotopy continuation method for solving polynomial systems. It updates its original version HOM4PS in three key aspects: (1) New method for finding mixed cells, (2) New idea of following homotopy paths, (3) New way of dealing with the curve jumping.

The parallel version of HOM4PS-2.0, named HOM4PS-2.0para, parallelizes the three main stages in HOM4PS-2.0. Excellent scalability in the numerical results shows that the parallelization of the homotopy method always provides a great amount of extra computing resources to help solve polynomial systems of larger size which would be very difficult to deal with otherwise.

Further Information

Further details and information about this and other departmental activities is available online at http://www.math.usm.edu/bulletin_board/.