1041-49-129   **Dan Bates*** (`bates@math.colostate.edu`), Department of Mathematics, 101 Weber Building, Colorado State University, Fort Collins, CO 80523. *Numerical algebraic geometry in optimal control.*

Certain problems arising in optimal control may be addressed by repeatedly solving polynomial systems at various points in a parameter space. Recently, a new approach was suggested by I. Fotiou, P. Rostalski, B. Sturmfels, and M. Morari in which each polynomial system is solved with no knowledge from previous parameter values. Continuation methods indicate a clear alternative. This talk will report on joint work with A. Beccuti, I. Fotiou, M. Morari, and P. Rostalski (all at ETH Zurich) on solving such optimal control problems via continuation and on the potential for using more sophisticated methods from numerical algebraic geometry to produce more efficient techniques. (Received August 08, 2008)