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

1001-65-235 **Anton Leykin**, **Jan Verschelde** and **Ailing Zhao*** (`azhao1@uic.edu`), 3254 S. Lowe Ave., Chicago, IL 60616. *Newton's Method with Deflation for Isolated Singularities of Polynomial Systems.*

We present a modification of Newton's method to restore quadratic convergence for isolated singular solutions of polynomial systems. Our method is symbolic-numeric: we produce a new polynomial system which has the original multiple solution as a regular root. We show that the number of deflation stages is bounded by the multiplicity of the isolated root. Our implementation performs well on a large class of applications. (Received August 27, 2004)