

Adaptive Multiprecision Endgames

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I, Daniel Bates (University of Notre Dame), and Charles Wampler (GM Research & Development) have been developing Bertini, a software package for numerical algebraic geometry computations. A key point of Bertini is that it has been designed from the start to be able to change precision dynamically. In making adaptive use of multiprecision, we needed to rethink the standard homotopy continuation method of finding solutions of a system of polynomials. In particular, this talk focuses on how the floating-point precision can be adaptively adjusted in several different endgames to achieve a specified accuracy in the final estimate of singular solutions.
