1100-14-118   **Dan Bates*** (`bates@math.colostate.edu`). *Finding all real solutions of a polynomial system within complex curves and surfaces.*

The methods of numerical algebraic geometry may be used to find numerical approximations of general points on each irreducible component of a complex algebraic set. While this is satisfactory for some users, a decomposition of the real algebraic set would be more useful for others. In this talk, I will briefly survey the main complex methods, then describe a new set of methods for finding all real points within complex curves and surfaces. I will also display some output from our new software package, Bertini Real, designed over the past 15 months. This is joint work with D. Brake, W. Hao, J. Hauenstein, A. Sommese, and C. Wampler. (Received February 04, 2014)