1016-14-69	**Ye Lu***, 255 Hurley BLD, Notre Dame, IN 46556, and **Andrew J. Sommese**, **Charles W. Wampler** and **Danial J. Bates**. *Finding All Real Solutions of Polynomial Systems.*

(joint work with Andrew J. Sommese, Charles W. Wampler and Daniel J. Bates) We are interested in describing the set of real solutions of a system of polynomials on C^N with real coefficients. Recently, new techniques have been successfully developed to numerically decompose complex solutions into irreducible components by Sommese, Verschelde and Wampler. With the help of this decomposition, the technique of deflation and a Morse-theoretic decomposition, we give an algorithm for numerically computing the real solution set. Some examples of the use of the algorithm will be presented. (Received January 29, 2006)