1046-13-20  Marshall Hampton* (mhampton@umn.edu), SCC 140, UMD, 1117 University Dr., Duluth, MN 55812. Solutions, bounds, and finiteness of polynomial systems in Sage.

Systems of polynomial equations can be studied with many tools, both symbolic and numerical, such as Groebner bases, resultants, numerical homotopy continuation methods, and tropical geometry/BKK theory. Sage provides a unified platform for all of these computations by integrating packages such as Singular, Gfan, PHCpack, and cddlib (among many others). I will provide an overview of how these tools can be combined through example systems from the n-body and n-vortex problems. (Received May 25, 2008)