

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

1001-37-119            **Marshall E Hampton\*** ([hampton@math.umn.edu](mailto:hampton@math.umn.edu)), 206 Church St. S.E., Minneapolis, MN 55455,  
and **Richard Moeckel**. *On Smale's 6th Problem: A solution in the four-body case.*

In 1998 Smale formulated 18 problems for the 21st century, the sixth of which was: prove that there are finitely many relative equilibria for positive masses in the planar  $n$ -body problem. In joint work with Richard Moeckel, we have proven this result for  $n = 4$  using some refinements of BKK theory and Groebner bases. (Received August 18, 2004)