998-14-367 **Evgenia Soprunova*** (`esoprun@math.umass.edu`), Lederle Graduate Research Tower, University of Massachusetts, Amherst, MA 01003-9305. *Lower Bounds for Real Polynomial Systems.* Preliminary report.

We show how to construct sparse polynomial systems that have non-trivial lower bounds on their numbers of real solutions. These are unmixed systems associated to certain polytopes. For the order polytope of a poset P, this lower bound is the sign-imbalance of P, and it holds when P is ranked mod 2 and if all maximal chains of P have the same parity. This theory also gives lower bounds in the real Schubert calculus through sagbi degenerations to toric varieties. This is a joint work with Frank Sottile. (Received March 02, 2004)