1078-05-88 **Mirkó Visontai*** (`mirko@math.upenn.edu`) and **Nathan Williams** (`will3089@math.umn.edu`).
Stable W-Eulerian polynomials.

Brenti showed that the Eulerian polynomials of type B have only real roots. In this talk, we strengthen this result. We give a multivariate refinement of these polynomials and show that they are stable, in the sense that they don't vanish whenever the variables have positive imaginary parts.

Our method relies on a refinement of the descent statistic for signed permutations. The key is that our refined multivariate Eulerian polynomials satisfy a recurrence given by a stability-preserving linear operator. The results extend naturally to colored permutations, and generalizations of recent real-rootedness results due to Dilks, Petersen, and Stembridge on affine Eulerian polynomials of types A and C. (Received November 22, 2011)