1016-65-237 **Jan Verschelde** (jan@math.uic.edu), 851 South Morgan (MC 249), Chicago, IL 60607-7045, and **Yan Zhuang*** (yzhuan1@math.uic.edu), 851 South Morgan (M/C 249), Chicago, IL 60607-7045.

Parallel implementation of the polyhedral homotopy method. Preliminary report.

Homotopy methods to solve polynomial systems are well suited for parallel computing because the solution paths defined by the homotopy can be tracked independently. For sparse polynomial systems, polyhedral methods give efficient homotopy algorithms. The parallel implementation of the polyhedral homotopy methods need 3 stages: compute the mixed volume, solve a random coefficient start system and track solution paths to solve the target system. My talk is about how to parallelize the second stage in PHCpack. We use static workload distribution algorithm and achieve a good speedup on the cyclic n-roots benchmark systems. (Received February 13, 2006)