1135-90-572 **Jesús De Loera**, **Jamie Haddock*** (jhaddock@math.ucdavis.edu) and **Luis Rademacher**.

*The Minimum Euclidean-Norm Point on a Convex Polytope.* Preliminary report.

We consider the problem of finding the point of minimum Euclidean-norm in a convex polytope; this problem is denoted MNP. In 1974, Philip Wolfe proposed a combinatorial algorithm for MNP but its complexity has remained unknown. Solving MNP via Wolfe's algorithm is currently relevant as it is one of the most practical known algorithms for submodular function minimization, which offers efficient and accurate solutions to problems from machine learning. We first present additional motivation for considering this problem by showing that linear programming reduces in strongly-polynomial time to MNP over a simplex. Additionally, we present several 'pivot' rules for Wolfe's algorithm and discuss initial results towards complexity of Wolfe's algorithm for a natural choice of 'pivot' rule. (Received September 08, 2017)