1039-52-59 **Han M Duong*** (han@math.uiuc.edu), 109 George Huff Dr, Urbana, IL 61801. *Minimal Volume $k$-Point Lattice $d$-Simplices.*

We improve upon recent results by Reznick, and Bey, Henk, and Wills. We show that the $k \geq 1$ interior lattice points of a lattice $d$-simplex with minimal volume $\frac{1}{d!}(dk+1)$ are collinear with a vertex. Moreover, there is exactly one such class of $d$-simplices under unimodular transformations provided $d \geq 3$. Counterexamples will be given for $\mathbb{R}^2$. (Received March 03, 2008)