1042-52-82 **Valeriu Soltan*** (`vsoltan@gmu.edu`), 4400 University Drive, Fairfax, VA 22030. *Convex sets with homothetic planar sections through given points.* Preliminary report.

Let K_1 and K_2 be n-dimensional closed convex sets in Euclidean space $\mathbb{R}^n$, $n \geq 4$, and let $p_1 \in \text{int } K_1$ and $p_2 \in \text{int } K_2$ be given points. If for any choice of a 2-dimensional subspace L of $\mathbb{R}^n$ the planar sections $(p_1 + L) \cap K_1$ and $(p_2 + L) \cap K_2$ are homothetic, then K_1 and K_2 are homothetic. Furthermore, if there is a homothety f such that $f(K_1) = K_2$ and $f(p_1) \neq p_2$ then K_1 and K_2 are convex cones or bd K_1 and bd K_2 are convex quadric surfaces. (Received August 11, 2008)