1067-52-985 **Stoyu Barov** (stoyu@yahoo.com), Institute of Mathematics, Bulgarian Academy of Sciences, 8 Acad. G. Bonchev Str., 1113 Sofia, Bulgaria, and **Jan J. Dijkstra*** (dijkstra@cs.vu.nl), Afdeling Wiskunde, Vrije Universiteit, De Boelelaan 1081, 1081 HV Amsterdam, Netherlands. *On closed sets with convex shadows in Hilbert space.*

For a subset of the Hilbert space ℓ^2 its *shadows* are the orthogonal projections of the set onto hyperplanes. If $\mathcal{P}$ is a set of projection directions (unit vectors) then two sets are called $\mathcal{P}$*-imitations* of each other if they have identical shadows in all directions from $\mathcal{P}$. We present a number of results about closed sets in ℓ^2 that have convex shadows.

Theorem 1. *Let B be is a closed convex subset of ℓ^2 that does not contain a hyperplane and let $\mathcal{P}$ be a set of directions such that B is not an $(\operatorname{int}\overline{\mathcal{P}})$-imitation of B. If C is a closed $\mathcal{P}$-imitation of B such that $C \neq B$ then C contains a closed set that is homeomorphic to ℓ^2.*

For a set $B \subset \ell^2$ we let the *geometric interior* denote the interior of B with respect to the closed affine hull of B.

Theorem 2. *Let B be a closed convex subset of ℓ^2 with an empty geometric interior and let $\mathcal{P}$ be a somewhere dense set of directions. If C is a closed $\mathcal{P}$-imitation of B then $C = B$.*

We also discuss the construction of minimal imitations of closed convex sets that show among other things that Theorem 1 is sharp. (Received September 17, 2010)