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Direction of Movement of the Element of Minimal Norm in a Moving Convex Set

We show that if K is a nonempty closed convex subset of a real Hilbert space H , e is a non-zero arbitrary vector in H and for each $t \in \mathbb{R}$, $z(t)$ is the closest point in $K + te$ to the origin, then the angle $z(t)$ makes with e is a decreasing function of t while $z(t) \neq 0$, and the inner product of $z(t)$ with e is increasing.

Keywords: Moving convex set, nearest point projection.

MSC: 46C05; 47H99, 41A65