KAROLY BEZDEK, University of Calgary, 2500 University Drive N.W., Calgary, AB T2N 1N4
The illumination problem and the cube

Let K be an arbitrary convex body in d-dimensional Euclidean space and let $-1 < k < d$ be some fixed nonnegative integer. Then let $I(k, K)$ denote the smallest number of k-dimensional affine subspaces that illuminate K. According to a conjecture of K. Bezdek (1994), if C denotes the d-dimensional unit cube, then $I(k, K)$ is always at most as large as $I(k, C)$. In the talk we survey the status of this conjecture including the more recent results on the rather combinatorial quantity $I(k, C)$.