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*Carathéodory-type Results for Faces of Convex Sets*

We present several Carathéodory-type results on extreme representations of sums and unions of finitely many closed convex sets or polyhedra in  $R^n$  in terms of their faces. For example, if  $K_1, \dots, K_r$  are nonempty line-free closed convex sets in  $R^n$ , then for any point  $z \in K_1 + \dots + K_r$ , there are nonempty faces  $F_i$  of  $K_i$ ,  $i = 1, \dots, r$ , such that  $z \in F_1 + \dots + F_r$  and the sum of dimensions of these faces does not exceed  $n$ . (This is a joint work with Jim Lawrence.)