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Isomorphic and isometric classification of spaces of continuous and Baire affine functions

Abstract: This thesis consists of five research papers. The first paper: We prove that under certain conditions, the existence of an isomorphism between spaces of continuous affine functions on the compact convex sets imposes homeomorphism between the sets of its extreme points. The second: We investigate a transfer of descriptive properties of elements of biduals of Banach spaces construed as functions on dual unit balls. We also prove results on the relation of Baire classes and intrinsic Baire classes of L_1-preduals. The third: We identify intrinsic Baire classes of X with the spaces of odd or homogeneous Baire functions on $\operatorname{ext} B_{X^*}$, provided X is a separable real or complex L_1-predual with the set of extreme points of its dual unit ball of type F_σ. We also provide an example of a separable C^*-algebra such that the second and second intrinsic Baire class of its bidual differ. The fourth: We generalize some of the above mentioned results for real non-separable L_1-preduals. The fifth: We compute the distance of a general mapping to the family of mappings of the first resolvable class via the quantity frag and we introduce and investigate a class of mappings of countable oscillation rank.