A GENERALIZATION OF KANTOROVICH OPERATORS FOR CONVEX COMPACT SETS AND APPLICATIONS

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Abstract

Let K be a convex compact subset of some locally convex Hausdorff space X. Starting from a Markov operator $T : C(K) \to C(K)$, a real number $a \geq 0$, and a sequence $(\mu_n)_{n \geq 1}$ of probability Borel measures on K, we shall construct a sequence of positive linear operators $(C_n)_{n \geq 1}$ acting on certain function spaces on K.

The class of such operators contains some well-known operators as the Kantorovich ones on the unit interval, on the multidimensional hypercube or on the simplex or $\mathbb{R}^d$, together with several of their wide-ranging generalizations scattered in the literature.

We are interested on approximation as well as shape preserving properties of the operators C_n. Moreover, we also show that the operators C_n can be used for approximating the solutions to certain initial-boundary value differential problems.

Even if X can be also infinite dimensional, for the sake of simplicity in this talk we limit ourselves to the case $K \subset \mathbb{R}^d$, $(d \geq 1)$.

The talk is based on some joint works with Francesco Altomare, Mirella Cappelletti Montano, and Ioan Raşa (see [1, 2, 3].

Bibliography

[1] **F. Altomare, M. Cappelletti Montano, V.L., and I. Raşa**, A generalization of Kantorovich operators for convex compact subsets, *Banach J. Math. Anal.* **11**(3) (2017) 591–614.

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