Tensorial representation of p-regular multilinear operators between Banach lattices

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Abstract

We introduce the new class of the $(p; p_1, ..., p_m)$-regular multilinear operators between Banach lattices, that is defined using a summability property that provides the multilinear version of the (p, q)-regular operators. Some composition results are proved and we show that every continuous multilinear operators are $(p; p_1, ..., p_m)$-regular under some requirements. We find the trace duality representation of this class of multilinear operators by presenting a reasonable crossnorm that satisfies that the topological dual space of an $(m + 1)$-fold tensor product is isometric to the space of $(p; p_1, ..., p_m)$-regular multilinear operators.

Introduction

In [1], E. A. Sánchez Pérez and P. Tradacete give a systematic study of the class of (p, q)-regular operators between quasi-Banach lattices establishing many of its fundamental properties, factorization properties and the trace duality for these operators. Actually this concept introduced by Bukhvalov [2] in connection with the interpolation of Banach lattices. A linear operator T between Banach lattices X and Y is (p, q)-regular if there is a positive constant C such that for all $x_1, ..., x_n \in X$, we have

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