Pellegrino, D.; **Santos, J.**; **Seoane-Sepúlveda, J. B.**
A general extrapolation theorem for absolutely summing operators. (English) Zbl 1269.47020
Bull. Lond. Math. Soc. 44, No. 6, 1292-1302 (2012).

Let X, Y, E be non void-sets, $\mathcal{H}(X;Y)$ be a non-void family of mappings from X to Y, let G be a Banach space space and let K be a compact Hausdorff topological space. Let $R : K \times E \times G \to [0,\infty)$ and $S : \mathcal{H}(X;Y) \times E \times G \to [0,\infty)$ be arbitrary mappings and $1 \leq t < \infty$. A mapping $f \in \mathcal{H}(X;Y)$ is called RS-abstract t-summing if there exists $C \geq 0$ such that

$$\left(\sum_{j=1}^{m} S(f,x_j,b_j)^t\right)^{1/t} \leq C \sup_{\varphi\in K}\left(\sum_{j=1}^{m} R(\varphi,x_j,b_j)^t\right)^{1/t}$$

for all $x_1,\ldots,x_m \in E, b_1,\ldots,b_m \in G$ and $m \in \mathbb{N}$. Let $\mathcal{H}_{RS,t}(X;Y) = \{f \in \mathcal{H}(X;Y) : f$ is RS-abstract t-summing$\}$.

In the paper under review, the authors prove a general version of the extrapolation theorem for absolutely summing operators. Precisely, they show the following. Let X be a topological space, $E = X \times X$ and K be a compact Hausdorff space such that X is embedded in $C(K)$. Let $1 < r < p < \infty$. If $\mathcal{H}_{RS,p}(X;\ell_p) = \mathcal{H}_{RS,r}(X;\ell_p)$, then, for any Banach space Y, $\mathcal{H}_{RS,p}(X;Y) = \mathcal{H}_{RS,1}(X;Y)$.

This result extends the classical theorem due to B. Maurey and also contains the extrapolation theorem for Lipschitz p-summing operators and new extrapolation type theorems.

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MSC:

47B10 Linear operators belonging to operator ideals (nuclear, p-summing, in the Schatten-von Neumann classes, etc.)
46T99 Nonlinear functional analysis

Keywords:

RS-abstract t-summing mapping; extrapolation theorem

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