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POINT OF CONTINUITY PROPERTY AND SCHAUDER BASES

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ABSTRACT. We get a characterization of point of continuity property in Banach spaces with a shrinking Schauder finite-dimensional decomposition. We also prove that a Banach space with a shrinking Schauder finite-dimensional decomposition has the point of continuity property if every subspace with a shrinking Schauder basis has it.

1. Introduction. We begin by recalling some geometrical properties in Banach spaces: (see [**2, 4** and **6**]).

Let X be a Banach space, C a closed, bounded, convex and nonempty subset of X and τ a topology in X.

C is said to have the point of τ-continuity property (τ-PCP) if for every closed subset, F, of C the identity map from (F, τ) into $(F, \| \|)$ has some point of continuity.

If C satisfies the above definition with τ the weak topology in X, then C is said to have the point of continuity property (PCP).

C is said to have the Radon-Nikodym property (RNP) if for every measure space (Ω, Σ, μ) and for every $F : \Sigma \to X$, μ-continuous vector measure, such that

$$\frac{F(A)}{\mu(A)} \in C \quad \forall\, A \in \Sigma, \quad \mu(A) > 0$$

there is $f : \Omega \to X$ Bochner integrable with

$$F(A) = \int_A f \, d\mu \quad \forall\, A \in \Sigma.$$

C is said to have the Krein-Milman property (KMP) if each closed, convex and nonempty subset of C is the closed convex hull of its extreme points.

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