

Ioana Ghenciu

L-limited-like properties on Banach spaces

Comment.Math.Univ.Carolin. 64,4 (2023) 439–457.

Abstract: We study weakly precompact sets and operators. We show that an operator is weakly precompact if and only if its adjoint is pseudo weakly compact. We study Banach spaces with the p - L -limited* and the p -(SR*) properties and characterize these classes of Banach spaces in terms of p - L -limited* and p -Right* subsets. The p - L -limited* property is studied in some spaces of operators.

Keywords: p -Right* set; Right* set; DP p -convergent operator; weakly precompact operator; limited p -convergent operator

AMS Subject Classification: 46B20, 46B25, 46B28

REFERENCES

- [1] Alikhani M., *Sequentially right-like properties on Banach spaces*, Filomat **33** (2019), no. 14, 4461–4474.
- [2] Andrews K. T., *Dunford–Pettis sets in the space of Bochner integrable functions*, Math. Ann. **241** (1979), no. 1, 35–41.
- [3] Bator E., Lewis P., Ochoa J., *Evaluation maps, restriction maps, and compactness*, Colloq. Math. **78** (1998), no. 1, 1–17.
- [4] Bourgain J., Delbaen F., *A class of special L_∞ spaces*, Acta Math. **145** (1980), no. 3–4, 155–176.
- [5] Bourgain J., Diestel J., *Limited operators and strict cosingularity*, Math. Nachr. **119** (1984), 55–58.
- [6] Carrión H., Galindo P., Lourenço M., *A stronger Dunford–Pettis property*, Studia Math. **184** (2008), no. 3, 205–216.
- [7] Castillo J. M. F., Sanchez F., *Dunford–Pettis like properties of continuous vector function spaces*, Rev. Mat. Univ. Complut. Madrid **6** (1993), no. 1, 43–59.
- [8] Cembranos P., *$C(K, E)$ contains a complemented copy of c_0* , Proc. Amer. Math. Soc. **91** (1984), no. 4, 556–558.
- [9] Cilia R., Emmanuele G., *Some isomorphic properties in $K(X, Y)$ and in projective tensor products*, Colloq. Math. **146** (2017), no. 2, 239–252.
- [10] Dehghani M., Dehghani M. B., Moshtaghion M. S., *Sequentially right Banach spaces of order p* , Comment. Math. Univ. Carolin. **61** (2020), no. 1, 51–67.
- [11] Diestel J., *A survey of results related to the Dunford–Pettis property*, Proc. of Conf. on Integration, Topology, and Geometry in Linear Spaces, Univ. North Carolina, Chapel Hill, N.C., 1979, Contemp. Math., 2, Amer. Math. Soc., Providence, 1980, pages 15–60.
- [12] Diestel J., Jarchow H., Tonge A., *Absolutely Summing Operators*, Cambridge Studies in Advanced Mathematics, 43, Cambridge University Press, Cambridge, 1995.
- [13] Drewnowski L., Emmanuele G., *On Banach spaces with the Gel’fand–Phillips property. II*, Rend. Circ. Mat. Palermo (2) **38** (1989), no. 3, 377–391.
- [14] Emmanuele G., *Banach spaces in which Dunford–Pettis sets are relatively compact*, Arch. Math. (Basel) **58** (1992), no. 5, 477–485.
- [15] Fourie J. H., Zeekoei E. D., *DP^* -Properties of order p on Banach spaces*, Quaest. Math. **37** (2014), no. 3, 349–358.
- [16] Fourie J. H., Zeekoei E. D., *On weak-star p -convergent operators*, Quaest. Math. **40** (2017), no. 5, 563–579.
- [17] Ghenciu I., *Weak precompactness and property (V^*) in spaces of compact operators*, Colloq. Math. **138** (2015), no. 2, 255–269.
- [18] Ghenciu I., *L -sets and property (SR^*) in spaces of compact operators*, Monatsh. Math. **181** (2016), no. 3, 609–628.
- [19] Ghenciu I., *A note on some isomorphic properties in projective tensor products*, Extracta Math. **32** (2017), no. 1, 1–24.
- [20] Ghenciu I., *The p -Gelfand–Phillips property in spaces of operators and Dunford–Pettis like sets*, Acta Math. Hungar. **155** (2018), no. 2, 439–457.

- [21] Ghenciu I., *Some classes of Banach spaces and complemented subspaces of operators*, Adv. Oper. Theory **4** (2019), no. 2, 369–387.
- [22] Ghenciu I., *A note on p -limited sets in dual Banach spaces*, Monatsh. Math. **200** (2023), no. 2, 255–270.
- [23] Ghenciu I., Lewis P., *Almost weakly compact operators*, Bull. Pol. Acad. Sci. Math. **54** (2006), no. 3–4, 237–256.
- [24] Ghenciu I., Lewis P., *Completely continuous operators*, Colloq. Math. **126** (2012), no. 2, 231–256.
- [25] Ghenciu I., Popescu R., *A note on some classes of operators on $C(K, X)$* , Quaest. Math. **47** (2024), no. 1, 21–42.
- [26] Kačena M., *On sequentially right Banach spaces*, Extracta Math. **26** (2011), no. 1, 1–27.
- [27] Karn A.K., Sinha D.P., *An operator summability of sequences in Banach spaces*, Glasg. Math. J. **56** (2014), no. 2, 427–437.
- [28] Li L., Chen D., Chavez-Dominguez J. A., *Pelczyński's property (V^*) of order p and its quantification*, Math. Nachr. **291** (2018), no. 2–3, 420–442.
- [29] Pelczyński A., *Banach spaces on which every unconditionally converging operator is weakly compact*, Bull. Acad. Polon. Sci. Sér. Sci. Math. Astronom. Phys. **10** (1962), 641–648.
- [30] Peralta A.M., Villanueva I., Wright J.D.M., Ylinen K., *Topological characterization of weakly compact operators*, J. Math. Anal. Appl. **325** (2007), no. 2, 968–974.
- [31] Rosenthal H.P., *Point-wise compact subsets of the first Baire class*, Amer. J. Math. **99** (1977), no. 2, 362–378.
- [32] Salimi M., Moshtaghian S.M., *A new class of Banach spaces and its relation with some geometric properties of Banach spaces*, Abstr. Appl. Anal. (2012), Art. ID 212957, 8 pages.
- [33] Wojtaszczyk P., *Banach Spaces for Analysts*, Cambridge Studies in Advanced Mathematics, 25, Cambridge University Press, Cambridge, 1991.