

## ON A GENERALIZATION OF LEFT AND RIGHT INVERTIBLE OPERATORS ON BANACH SPACES

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*Abstract.* The purpose of this paper is to define and study left and right versions of the large class of Drazin invertible operators on Banach spaces, namely left and right Drazin invertible operators, as a generalization of left and right invertible operators. It is shown in particular that the operators introduced can be characterized by means of Kato decompositions.

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### REFERENCES

- [1] P. AIENA, M. T. BIONDI, C. CARPINTERO, *On Drazin invertibility*, Proc. Amer. Math. Soc. 136, no. 8 (2008), 2839–2848.
- [2] S. R. CARADUS, *Generalized inverses and operator theory*, Queen’s Papers in Pure and Appl. Math. 50 (Queen’s University, Kingston, Ontario, 1978).
- [3] D. E. FERREYRA, F. E. LEVIS, N. THOME, *Left and right generalized Drazin invertible operators on Banach spaces and applications*, Oper. Matrices. Vol. 13, Number 3 (2019), 569–583.
- [4] M. A. KAASHOEK, *Ascent, descent, nullity and defect, a note on a paper by A. E. Taylor*, Math. Ann. 172 (1967), 105–115.
- [5] C. F. KING, *A note on Drazin inverses*, Pacific J. Math. 70 (1977), 383–390.
- [6] D. C. LAY, *Spectral properties of generalized inverses of linear operators*, SIAM J. Appl. Math. 29 (1975), 103–109.
- [7] V. MÜLLER, *On the Kato decomposition of quasi-Fredholm operators and B-Fredholm operators*, Proc. Workshop Geometry in Functional Analysis, Erwin Schrodinger Institute, Wien, (2000).
- [8] A. E. TAYLOR, *Theorems on ascent, descent, nullity and defect of linear operators*, Math. Ann. 163 (1966), 18–49.
- [9] A. E. TAYLOR, D. C. LAY, *Introduction to Functional Analysis*, Wiley, New York (1980).
- [10] S. C. ŽIVKOVIĆ-ZLATANOVIĆ, D. S. DJORDJEVIĆ, R. E. HARTE, *On left and right Browder operators*, Jour. Korean Math. Soc. 48 (2011), 1053–1063.