ON A GENERALIZATION OF APPROXIMATIVE ABSOLUTE NEIGHBORHOOD RETRACTS

MIROSŁAW ŚLOSARSKI

Technical University of Koszalin
Śniadeckich 2
PL-75-453 Koszalin, Poland.
E-mail: slomir@neostrada.pl

Abstract. In this paper we introduce a new class of metric spaces for which the Lefschetz fixed point theorem holds true.
Key Words and Phrases: Lefschetz number, fixed points, topological vector spaces, Klee admissible spaces, movable space, absolute neighborhood multi-retracts, approximative absolute neighborhood multi-retracts.
2000 Mathematics Subject Classification: 55M20, 54H25, 54C55, 47H10.

References

[1] R.P. Agarwal, D. O'Regan, *A note on the Lefschetz fixed point theorem for admissible spaces*, Bull. Korean Math. Soc., **42**, No. 2, 307-313.

[2] J. Andres, L. Górniewicz, *Topological Principles for Boundary Value Problems*, Kluwer Acad. Publ., 2003.

[3] S.A. Bogatyi, *Approximative and fundamental retracts*, Math. USSR Sb., **22**(1974), 91103.

[4] K. Borsuk, *Theory of Shape*, Lect. Notes Ser., Vol. 28, Matematisk Institut, Aarhus Universitet, Aarhus, 1971.

[5] M.H. Clapp, *On a generalization of absolute neighborhood retracts*, Fund. Math., **70**(1971), 117130.

[6] S. Eilenberg, N. Steenrod, *Foundations of Algebraic Topology*, Princeton, New Jersey Princeton University Press, 1952.

[7] G. Fournier, A. Granas, *The Lefschetz fixed point theorem for some classes of non-metrizable spaces*, J. Math. Pures et Appl., **52**(1973), 271-284.

[8] L. Górniewicz, *Topological Methods in Fixed Point Theory of Multi-valued Mappings*, Springer, Berlin, 2006.

[9] L. Górniewicz, D. Rozpłoch-Nowakowska, *The Lefschetz fixed point theory for morphisms in topological vector spaces*, Topological Meth. in Nonlinear Anal., **20**(2002), 315-333.

[10] L. Górniewicz, M. Ślosarski, *Once more on the Lefschetz fixed point theorem*, Bull. Polish Acad. Sci. Math., **55**(2007), 161-170.

[11] L. Górniewicz, M. Ślosarski, *Fixed points of mappings in Klee admissible spaces*, Control and Cybernetics, **36**(2007), No. 3, 825-832.

[12] A. Granas, *Generalizing the Hopf-Lefschetz fixed point theorem for non-compact ANR's*, Sympos. Infinite Dim. Topology, Baton Rouge 1967, Ann. Math. Stud., **69**(1972), 119-130.

[13] A. Granas, J. Dugundji, *Fixed Point Theory*, Springer, New York, 2003.

[14] J. Jaworowski, *Continuous Homology Properties of Approximative Retracts*, Bull. Acad. Pol. Sci., Sér. Sci. Math. Astron. Phys., **18**(1970), 359-362.

[15] C. Krathausen, G. Müller, J. Reinermann, R. Schöneberg, *New Fixed Point Theorems for Compact and Nonexpansive Mappings and Applications to Hammerstein Equations*, preprint no. 92, Sonderforschungsbereich 72, Approximation und Optimierung, Universität Bonn, 1976.

[16] W. Kryszewski, *The Lefschetz type theorem for a class of noncompact mappings*, Suppl. Rend. Circ. Mat. Palermo, (2) **14**(1987), 365-384.

[17] J. Leray, J. Schauder, *Topologie et équations fonctionnelles*, Ann. Sci. École Norm. Sup., **51**(1934), 45-78.

[18] H.O. Peitgen, *On the Lefschetz number for iterates of continuous mappings*, Proc. Amer. Math. Soc., **54**(1976), 441-444.

[19] R. Skiba, M. Ślosarski, *On a generalization of absolute neighborhood retracts*, Topology and its Applications, **156**(2009), 697-709.

[20] M. Ślosarski, *Fixed points of multivalued mappings in Hausdorff topological spaces*, Nonlinear Analysis Forum, **13**(2008), No. 1, 39-48.