

Sergio Macías
On the set function φ

Comment.Math.Univ.Carolin. 65,1 (2024) 99–129.

Abstract: Inspired by the work that Professor Janusz R. Prajs did on homogeneous metric continua in his paper (2010) and the version of his work for Hausdorff continua with the uniform property of Effros done by this author, we introduce a new set function, φ , and present properties of it.

Keywords: additivity; almost connected im kleinen; analytic set; aposyndetic continuum; atomic map; continuum; decomposable continuum; G_δ set; hyperspace; indecomposable continuum; monotone map; property of Kelley; set function \mathcal{K} ; set function \mathcal{T} ; set function φ ; set functions continuous on continua; uniform property of Effros; upper semicontinuous function

AMS Subject Classification: 54B20, 54C60, 54F16

REFERENCES

- [1] Bellamy D. P., Porter K. F., *A homogeneous continuum that is non-Effros*, Proc. Am. Math. Soc. **113** (1991), no. 2, 593–598.
- [2] Camargo J., Macías S., *Dynamics with set-valued functions and coselections*, Qual. Theory Dyn. Syst. **21** (2022), no. 2, Paper No. 25, 43 pages.
- [3] Charatonik W. J., *A homogeneous continuum without the property of Kelley*, Topology Appl. **96** (1999), no. 3, 209–216.
- [4] Engelking R., *General Topology*, Sigma Series in Pure Mathematics, 6, Heldermann Verlag, Berlin, 1989.
- [5] Goodykoontz J. T., Jr., *Some functions on hyperspaces of hereditarily unicoherent continua*, Fund. Math. **95** (1977), no. 1, 1–10.
- [6] Gorka S., *Several Set Functions and Continuous Maps*, Thesis Ph.D. Dissertation, University of Delaware, Delaware, 1997.
- [7] Hagopian C. L., *Mutual aposyndesis*, Proc. Amer. Math. Soc. **23** (1969), 615–622.
- [8] Hagopian C. L., *Concerning arcwise connectedness and the existence of simple closed curves in plane continua*, Trans. Amer. Math. Soc. **147** (1970), 389–402.
- [9] Ingram W. T., Mahavier W. S., *Inverse limits of upper semi-continuous set valued functions*, Houston J. Math. **32** (2006), no. 1, 119–130.
- [10] Jones F. B., *Concerning non-aposyndetic continua*, Amer. J. Math. **70** (1948), 403–413.
- [11] Kechris A. S., *Classical Descriptive Set Theory*, Graduate Texts in Mathematics, 156, Springer, New York, 1995.
- [12] Macías S., *Hausdorff continua and the uniform property of Effros*, Topology Appl. **230** (2017), 338–352.
- [13] Macías S., *On Jones' set function \mathcal{T} and the property of Kelley for Hausdorff continua*, Topology Appl. **226** (2017), 51–65.
- [14] Macías S., *Topics on Continua*, Springer, Cham, 2018.
- [15] Macías S., *Set Function \mathcal{T} - an Account on F. B. Jones' Contributions to Topology*, Developments in Mathematics, 67, Springer, Cham, 2021.
- [16] Macías S., *The uniform Effros property and local homogeneity*, Math. Slovaca **73** (2023), no. 4, 1013–1022.
- [17] Makuchowski W., *On local connectedness in hyperspaces*, Bull. Polish Acad. Sci. Math. **47** (1999), no. 2, 119–126.
- [18] Mrówka S., *On the convergence of nets of sets*, Fund. Math. **45** (1958), 237–346.
- [19] Nadler S. B., Jr., *Hyperspaces of Sets: A Text with Research Questions*, Aportaciones Matemáticas: Textos, 33, Sociedad Matemática Mexicana, México, 2006.
- [20] Prajs J. R., *Mutually aposyndetic decomposition of homogeneous continua*, Canad. J. Math. **62** (2010), no. 1, 182–201.
- [21] Rogers J. T., Jr., *Orbits of higher-dimensional hereditarily indecomposable continua*, Proc. Amer. Math. Soc. **95** (1985), no. 3, 483–486.

- [22] Rogers J. T., Jr., *Higher dimensional aposyndetic decompositions*, Proc. Amer. Math. Soc. **131** (2003), no. 10, 3285–3288.
- [23] Willard S., *General Topology*, Addison-Wesley Publishing Co., Reading, Mass.-London-Don Mills, 1970.