
Notation

- $\mathfrak{r}$ – the reaping number, xiii.
- G_{ω_1} – the family of intersections of ω_1 open subsets of a Polish space, xv.
- $E^+(A)$ – linear combinations of $A \subset \mathbb{R}$ with nonnegative rational coefficients, xvii.
- $\mathfrak{u}$ – xvii.
- $\mathfrak{i}$ – the independence number, xvii.
- $\mathbb{R}$ – the set of real numbers, xix.
- $\mathbb{Q}$ – the set of rational numbers, xix.
- $\mathbb{Z}$ – the set of integer numbers, xix.
- $\mathfrak{C}$ – the Cantor set 2^ω , xix.
- $\text{Perf}(X)$ – all subsets of a Polish space X homeomorphic to $\mathfrak{C}$, xix.
- $\text{cl}(A)$ – the closure of a subset A of a topological space X , xix.
- $\mathcal{C}(X)$ – the family of all continuous functions from X into $\mathbb{R}$, xix.
- $\text{cof}(\mathcal{I})$ – the cofinality of an ideal $\mathcal{I}$, xix.
- $\text{cov}(\mathcal{I})$ – the covering number of an ideal $\mathcal{I}$, xix.
- $\mathcal{N}$ – the ideal of Lebesgue measure zero subsets of $\mathbb{R}$, xix.
- $\mathcal{M}$ – the ideal of meager subsets of a Polish space, xx.
- s_0 – the ideal of Marczewski's s_0 subsets of a fixed Polish space, xx.
- $\mathcal{I}^+$ – coideal of the ideal $\mathcal{I}$ on X , $\mathcal{I}^+ = \mathcal{P}(X) \setminus \mathcal{I}$, xx.
- $\mathcal{F}_{\text{cube}}$ – all continuous injections from a perfect cube $C \subset \mathfrak{C}^\omega$ onto a fixed Polish space X , 2.
- $\text{dom}(f)$ – the domain of a function f , 2.
- CPA_{cube} – 3.
- s_0^{cube} – 3.
- “ D^1 ” – the class of all $f: \mathbb{R} \rightarrow \mathbb{R}$ having a finite or infinite derivative at every point, 5.
- (T_2) – the class of all $f: \mathbb{R} \rightarrow \mathbb{R}$ satisfying Banach condition T_2 , 5.

- $\Sigma_1^1, \Pi_1^1, \Sigma_2^1, \Pi_2^1$ – initial classes of projective hierarchy, starting with classes of analytic and co-analytic sets, 8.
- $\mathcal{C}_H$ – the family of all sets $\prod_{n<\omega} T_n$ such that $T_n \in [\omega]^{\leq n}$ for all $n < \omega$, 11.
- $\mathcal{B}_1$ – the family of all Baire class 1 functions $f: \mathbb{R} \rightarrow \mathbb{R}$, 10.
- $\mathfrak{r}_\sigma$ – 16.
- $\mathfrak{d}$ – the dominating number, 24.
- $\mathcal{C}_{\text{cube}}(X)$ – 31.
- $\mathcal{F}_{\text{cube}}^*(X)$ – 31.
- $\text{Perf}^*(X)$ – 31.
- $\text{GAME}_{\text{cube}}(X)$ – 31.
- $\text{CPA}_{\text{cube}}^{\text{game}}$ – 32.
- α – minimal cardinality of a maximal almost disjoint family $\mathcal{A} \subset [\omega]^\omega$, 34.
- $\Phi_{\text{prism}}(A)$ – projection-keeping homeomorphisms, 49.
- $\mathbb{P}_A$ – iterated perfect sets in $\mathfrak{C}^A$, 50.
- $\mathcal{F}_{\text{prism}}(X)$ – 50.
- $\mathcal{C}_{\text{prism}}$ – 50.
- $\mathcal{F}_{\text{prism}}^*$ – 50.
- $\text{GAME}_{\text{prism}}(X)$ – 51.
- $\text{CPA}_{\text{prism}}^{\text{game}}$ – 51.
- $\text{CPA}_{\text{prism}}$ – 52.
- π_β – projection from $\mathfrak{C}^\alpha$ onto $\mathfrak{C}^\beta$, 53.
- ρ – a standard metric on $\mathfrak{C}^\alpha$, 53.
- $B_\alpha(z, \varepsilon)$ – an open ball in $\mathfrak{C}^\alpha$ with center at z and radius ε , 53.
- $\mathcal{B}_\alpha$ – clopen subsets of $\mathfrak{C}^\alpha$, 53.
- $\text{cl}_{\mathcal{F}}(A)$ – $\mathcal{F}$ -closure of $A \subset X$, for a family $\mathcal{F}$ of finitary symmetric relations on X , 65.
- $\mathcal{F}_M$ – the collection of all possible projections along the set $M \subset X$ of the finitary symmetric relations on X from $\mathcal{F}$, 65.
- s_0^{prism} – 69.
- $\text{add}(s_0)$ – the additivity of the ideal s_0 , 72.
- $\text{succ}_T(t)$ – is the set of all immediate successors of a node t in a tree T , 74.
- I^α – the α -th Fubini power of an ideal I , 74.
- $\text{GAME}_{\text{prism}}(\mathcal{X})$ – multiple spaces game, 88.
- $\text{CPA}_{\text{prism}}^{\text{game}}(\mathcal{X})$ – 88.
- $D^n(X)$ – n times differentiable functions from X to $\mathbb{R}$, 91.
- $\mathcal{C}^n(X)$ – all functions $f \in D^n(X)$ with continuous n -th derivative, 91.
- $\mathcal{C}^\infty(X)$ – all infinitely many times differentiable functions from X into $\mathbb{R}$, 91.
- “ $D^n(X)$ ”, “ $\mathcal{C}^n(X)$ ”, “ $\mathcal{C}^\infty(X)$ ” – 91.

- $\mathcal{C}_{\text{perf}}^n, D_{\text{perf}}^n, \mathcal{C}_{\text{perf}}^\infty, \text{“}\mathcal{C}_{\text{perf}}^\infty\text{”}$ – 91.
- $\text{cov}(\mathcal{A}, \mathcal{F})$ – 94.
- $\text{dec}(\mathcal{A}, \mathcal{F})$ – 96.
- $\text{IntTh}(\mathcal{A}, \mathcal{F})$ – $\mathcal{A}$ and $\mathcal{F}$ satisfy the intersection theorem, 97.
- $\text{LIN}(Z)$ – linear span of $Z \subset \mathbb{R}$ over $\mathbb{Q}$, 110.
- $\text{GAME}_{\text{prism}}^{\text{section}}(X)$ – 143.
- $\Gamma = \{\alpha < \omega_2 : \text{cof}(\alpha) = \omega_1\}$, 143.
- CPA – the covering property axiom, 143.
- $\text{CPA}_{\text{prism}}^{\text{sec}}$ – 144.
- $\text{CPA}_{\text{cube}}^{\text{sec}}$ – 145.

References

- [1] Agronsky, S., Bruckner, A.M., Laczkovich, M., and Preiss, D. Convexity conditions and intersections with smooth functions, *Trans. Amer. Math. Soc.* **289** (1985), 659–677.
- [2] Balcerzak, M., Ciesielski, K., and Natkaniec, T. Sierpiński–Zygmund functions that are Darboux, almost continuous, or have a perfect road, *Arch. Math. Logic* **37** (1997), 29–35. (Preprint* available.¹)
- [3] Banach, S. Sur une classe de fonctions continues, *Fund. Math.* **8** (1926), 166–172.
- [4] Bartoszyński, T., and Judah, H. *Set Theory. On the Structure of the Real Line*, A K Peters Ltd, Wellesley, MA, 1995.
- [5] Bartoszyński, T., and Reclaw, I. Not every γ -set is strongly meager, in *Set Theory* (Boise, ID, 1992–1994), 25–29, Contemp. Math. **192**, Amer. Math. Soc., Providence, RI, 1996.
- [6] Baumgartner, J. Sacks forcing and the total failure of Martin’s axiom, *Topology Appl.* **19**(3) (1985), 211–225.
- [7] Baumgartner J., and Laver, R. Iterated perfect-set forcing, *Ann. Math. Logic* **17** (1979), 271–288.
- [8] Berarducci, A., and Dikranjan, D. Uniformly approachable functions and UA spaces, *Rend. Ist. Matematico Univ. di Trieste* **25** (1993), 23–56.
- [9] Blass, A. Combinatorial cardinal characteristics of the continuum, to appear in *Handbook of Set Theory*, ed. M. Foreman, M. Magidor, and A. Kanamori.
- [10] Blumberg, H. New properties of all real functions, *Trans. Amer. Math. Soc.* **24** (1922), 113–128.
- [11] Brendle, J. An e-mail to J. Pawlikowski, June 11, 2000.
- [12] Brendle, J., Larson, P., and Todorcevic, S. Rectangular axioms, perfect set properties and decomposition, preprint of November, 2002.
- [13] Brodskii, M.L. On some properties of sets of positive measure, *Uspehi Matem. Nauk (N.S.)* **4**, No. **3** (31) (1949), 136–138.

¹ Preprints marked by * are available in electronic form from the *Set Theoretic Analysis Web Page*: <http://www.math.wvu.edu/homepages/kcies/STA/STA.html>

- [14] Brown, J.B. Differentiable restrictions of real functions, *Proc. Amer. Math. Soc.* **108** (1990), 391–398.
- [15] Brown, J.B. Restriction theorems in real analysis, *Real Anal. Exchange* **20**(1) (1994–95), 510–526.
- [16] Brown, J.B. Intersections of continuous, Lipschitz, Hölder class, and smooth functions, *Proc. Amer. Math. Soc.* **123** (1995), 1157–1165.
- [17] Bruckner, A.M. *Differentiation of Real Functions*, CMR Series **5**, Amer. Math. Soc., Providence, RI, 1994.
- [18] Bukovský, L., Kholshchevnikova, N.N., and Repický, M. Thin sets of harmonic analysis and infinite combinatorics, *Real Anal. Exchange* **20**(2) (1994–95), 454–509.
- [19] Burges, J.P. A selector principle for Σ_1^1 equivalence relations, *Michigan Math. J.* **24** (1977), 65–76.
- [20] Burke, M.R., and Ciesielski, K. Sets on which measurable functions are determined by their range, *Canad. J. Math.* **49** (1997), 1089–1116. (Preprint* available.)
- [21] Burke, M.R., and Ciesielski, K. Sets of range uniqueness for classes of continuous functions, *Proc. Amer. Math. Soc.* **127** (1999), 3295–3304. (Preprint* available.)
- [22] Ceder, J., and Ganguly, D.K. On projections of big planar sets, *Real Anal. Exchange* **9** (1983–84), 206–214.
- [23] Cichoń, J., Jasiński, A., Kamburelis, A., and Szczepaniak, P. On translations of subsets of the real line, *Proc. Amer. Math. Soc.* **130**(6) (2002), 1833–1842. (Preprint* available.)
- [24] Cichoń, J., Morayne, M., Pawlikowski, J., and Solecki, S. Decomposing Baire functions, *J. Symbolic Logic* **56**(4) (1991), 1273–1283.
- [25] Ciesielski, K. *Set Theory for the Working Mathematician*, London Math. Soc. Stud. Texts **39**, Cambridge Univ. Press, Cambridge, 1997.
- [26] Ciesielski, K. Set theoretic real analysis, *J. Appl. Anal.* **3**(2) (1997), 143–190. (Preprint* available.)
- [27] Ciesielski, K. Some additive Darboux-like functions, *J. Appl. Anal.* **4**(1) (1998), 43–51. (Preprint* available.)
- [28] Ciesielski, K. Decomposing symmetrically continuous functions and Sierpiński-Zygmund functions into continuous functions, *Proc. Amer. Math. Soc.* **127** (1999), 3615–3622. (Preprint* available.)
- [29] Ciesielski, K., and Jastrzębski, J. Darboux-like functions within the classes of Baire one, Baire two, and additive functions, *Topology Appl.* **103** (2000), 203–219. (Preprint* available.)
- [30] Ciesielski, K., and Millán, A. Separately nowhere constant functions; n -cube and α -prism densities, *J. Appl. Anal.*, to appear. (Preprint* available.)
- [31] Ciesielski, K., Millán, A., and Pawlikowski, J. Uncountable γ -sets under axiom $\text{CPA}_{\text{cube}}^{\text{game}}$, *Fund. Math.* **176**(1) (2003), 143–155. (Preprint* available.)
- [32] Ciesielski, K., and Natkaniec, T. On Sierpiński-Zygmund bijections and their inverses, *Topology Proc.* **22** (1997), 155–164. (Preprint* available.)

- [33] Ciesielski, K., and Natkaniec, T. A big symmetric planar set with small category projections, *Fund. Math.* **178**(3) (2003), 237–253. (Preprint* available.)
- [34] Ciesielski, K., and Pawlikowski, J. On sums of Darboux and nowhere constant continuous functions, *Proc. Amer. Math. Soc.* **130**(7) (2002), 2007–2013. (Preprint* available.)
- [35] Ciesielski, K., and Pawlikowski, J. On the cofinalities of Boolean algebras and the ideal of null sets, *Algebra Universalis* **47**(2) (2002), 139–143. (Preprint* available.)
- [36] Ciesielski, K., and Pawlikowski, J. Small combinatorial cardinal characteristics and theorems of Egorov and Blumberg, *Real Anal. Exchange* **26**(2) (2000–2001), 905–911. (Preprint* available.)
- [37] Ciesielski, K., and Pawlikowski, J. Crowded and selective ultrafilters under the Covering Property Axiom, *J. Appl. Anal.* **9**(1) (2003), 19–55. (Preprint* available.)
- [38] Ciesielski, K., and Pawlikowski, J. Small coverings with smooth functions under the Covering Property Axiom, *Canad. J. Math.*, to appear. (Preprint* available.)
- [39] Ciesielski, K., and Pawlikowski, J. Covering Property Axiom CPA_{cube} and its consequences, *Fund. Math.* **176**(1) (2003), 63–75. (Preprint* available.)
- [40] Ciesielski, K., and Pawlikowski, J. Nice Hamel bases under the Covering Property Axiom, *Acta Math. Hungar.*, to appear. (Preprint* available.)
- [41] Ciesielski, K., and Pawlikowski, J. Uncountable intersections of open sets under $\text{CPA}_{\text{prism}}$, *Proc. Amer. Math. Soc.*, to appear. (Preprint* available.)
- [42] Ciesielski, K., and Pawlikowski, J. On additive almost continuous functions under $\text{CPA}_{\text{prism}}^{\text{game}}$, *J. Appl. Anal.*, to appear. (Preprint* available.)
- [43] Ciesielski, K., and Pawlikowski, J. Continuous images of big sets and additivity of s_0 under $\text{CPA}_{\text{prism}}$, *Real Anal. Exchange*, to appear. (Preprint* available.)
- [44] Ciesielski, K., and Shelah, S. Model with no magic set, *J. Symbolic Logic* **64**(4) (1999), 1467–1490. (Preprint* available.)
- [45] Ciesielski, K., and Wojciechowski, J. Sums of connectivity functions on $\mathbb{R}^n$, *Proc. London Math. Soc.* **76**(2) (1998), 406–426. (Preprint* available.)
- [46] Coplakova, E., and Hart, K.P. Crowded rational ultrafilters, *Topology Appl.* **97** (1999), 79–84.
- [47] Darji, U. On completely Ramsey sets, *Colloq. Math.* **64**(2) (1993), 163–171.
- [48] Davies, R.O. Second category E with each $\text{proj}(\mathbb{R}^2 \setminus E^2)$ dense, *Real Anal. Exchange* **10** (1984–85), 231–232.
- [49] van Douwen, E.K. The integers and topology, in *Handbook of Set-Theoretic Topology*, ed. K. Kunen and J.E. Vaughan, North-Holland, Amsterdam (1984), 111–167.
- [50] van Douwen, E.K. Better closed ultrafilters on $\mathbb{Q}$, *Topology Appl.* **47** (1992), 173–177.
- [51] van Douwen, E.K., Monk, J.D., and Rubin, M. Some questions about Boolean algebras, *Algebra Universalis* **11** (1980), 220–243.
- [52] Eggleston, H.G. Two measure properties of Cartesian product sets, *Quart. J. Math. Oxford (2)* **5** (1954), 108–115.

- [53] Engelking, R. *General Topology*, Polish Sci. Publ. PWN, Warszawa, 1977.
- [54] Erdős, P. On some properties of Hamel bases, *Colloq. Math.* **10** (1963), 267–269.
- [55] Farah, I. Semiselective coideals, *Mathematika* **45** (1998), 79–103.
- [56] Federer, H. *Geometric Measure Theory*, Springer-Verlag, New York, 1969.
- [57] Filipów, R., and Reclaw, I. On the difference property of Borel measurable and (s)-measurable functions, *Acta Math. Hungar.* **96**(1) (2002), 21–25.
- [58] Foran, J. Continuous functions: A survey, *Real Anal. Exchange* **2** (1977), 85–103.
- [59] Fuchino, S., and Plewik, Sz. On a theorem of E. Helly, *Proc. Amer. Math. Soc.* **127**(2) (1999), 491–497.
- [60] Galvin, F. Partition theorems for the real line, *Notices Amer. Math. Soc.* **15** (1968), 660.
- [61] Galvin, F. Errata to “Partition theorems for the real line,” *Notices Amer. Math. Soc.* **16** (1969), 1095.
- [62] Galvin, F., and Miller, A.W. γ -sets and other singular sets of real numbers, *Topology Appl.* **17** (1984), 145–155.
- [63] Galvin, F., and Prikry, K. Borel sets and Ramsey’s theorem, *J. Symbolic Logic* **38** (1973), 193–198.
- [64] Gerlits, J., and Nagy, Zs. Some properties of $C(X)$, I, *Topology Appl.* **14** (1982), 151–161.
- [65] Grigorieff, S. Combinatorics on ideals and forcing, *Ann. Math. Logic* **3**(4) (1971), 363–394.
- [66] Hart, K.P. Ultrafilters of character ω_1 , *J. Symbolic Logic* **54**(1) (1989), 1–15.
- [67] Hrušák, M. Private communication (e-mail to K. Ciesielski), March 2000.
- [68] Hulanicki, A. Invariant extensions of the Lebesgue measure, *Fund. Math.* **51** (1962), 111–115.
- [69] Jech, T. *Set Theory*, Academic Press, New York, 1978.
- [70] Jordan, F. Generalizing the Blumberg theorem, *Real Anal. Exchange* **27**(2) (2001–2002), 423–439. (Preprint* available.)
- [71] Judah, H., Miller, A.W., and Shelah, S. Sacks forcing, Laver forcing, and Martin’s axiom, *Arch. Math. Logic* **31**(3) (1992), 145–161.
- [72] Just, W. and Koszmider, P. Remarks on cofinalities and homomorphism types of Boolean algebras, *Algebra Universalis* **28**(1) (1991), 138–149.
- [73] Kanovei, V. Non-Glimm–Effros equivalence relations at second projective level, *Fund. Math.* **154** (1997), 1–35.
- [74] Kechris, A.S. *Classical Descriptive Set Theory*, Springer-Verlag, Berlin, 1995.
- [75] Kellum, K.R. Sums and limits of almost continuous functions, *Colloq. Math.* **31** (1974), 125–128.
- [76] Kellum, K.R. Almost Continuity and connectivity - sometimes it’s as easy as to prove a stronger result, *Real Anal. Exchange* **8** (1982–83), 244–252.
- [77] Kharazishvili, A.B. *Strange Functions in Real Analysis*, Pure and Applied Mathematics **229**, Marcel Dekker, New York, 2000.
- [78] Kirchheim, B., and Natkaniec, T. On universally bad Darboux functions, *Real Anal. Exchange* **16** (1990–91), 481–486.

- [79] Koppelberg, S. Boolean algebras as unions of chains of subalgebras, *Algebra Universalis* **7** (1977), 195–204.
- [80] Kunen, K. Some points in $\beta\mathbf{N}$, *Math. Proc. Cambridge Philos. Soc.* **80**(3) (1976), 385–398.
- [81] Kunen, K. *Set Theory*, North-Holland, Amsterdam, 1983.
- [82] Laczkovich, M. Functions with measurable differences, *Acta Mathematica Academiae Scientiarum Hungaricae* **35**(1-2) (1980), 217–235.
- [83] Laczkovich, M. Two constructions of Sierpiński and some cardinal invariants of ideals, *Real Anal. Exchange* **24**(2) (1998–99), 663–676.
- [84] Laver, R. On the consistency of Borel’s conjecture, *Acta Math.* **137** (1976), 151–169.
- [85] Laver, R. Products of infinitely many perfect trees, *J. London Math. Soc.* **29** (1984), 385–396.
- [86] Loomis, L.H. On the representation of the σ -complete Boolean algebra, *Bull. Amer. Math. Soc.* **53** (1947), 757–760.
- [87] Luzin, N. Sur un problème de M. Baire, *Hebdomadaires Seances Acad. Sci. Paris* **158** (1914), 1258–1261.
- [88] Mahlo, P. Über Teilmengen des Kontinuums von dessen Mächtigkeit, *Sitzungsber. Sächs. Akad. Wiss. Leipzig Math.-Natu. Kl.* **65** (1913), 283–315.
- [89] Martin, D.A., and Solovay, R.M. Internal Cohen extensions, *Ann. Math. Logic* **2**(2) (1970), 143–178.
- [90] Mauldin, R.D. *The Scottish Book*, Birkhäuser, Boston, 1981.
- [91] Mazurkiewicz, S. Sur les suites de fonctions continues, *Fund. Math.* **18** (1932), 114–117.
- [92] Millán, A. A crowded Q -point under $\text{CPA}_{\text{prism}}^{\text{game}}$, preprint*.
- [93] Millán, A. $\text{CPA}_{\text{prism}}^{\text{game}}$ and ultrafilters on $\mathbb{Q}$, preprint*.
- [94] Miller, A.W. Covering 2^ω with ω_1 disjoint closed sets, *The Kleene Symposium*, North-Holland, Amsterdam (1980), 415–421.
- [95] Miller, A.W. Mapping a set of reals onto the reals, *J. Symbolic Logic* **48** (1983), 575–584.
- [96] Miller, A.W. Special Subsets of the Real Line, in *Handbook of Set-Theoretic Topology*, ed. K. Kunen and J.E. Vaughan, North-Holland, Amsterdam (1984), 201–233.
- [97] Miller, A.W. Additivity of measure implies dominating reals, *Proc. Amer. Math. Soc.* **91** (1984), 111–117.
- [98] Miller, H. On a property of Hamel bases, *Boll. Un. Mat. Ital A*(7) **3** (1989), 39–43.
- [99] Morayne, M. On continuity of symmetric restrictions of Borel functions, *Proc. Amer. Math. Soc.* **98** (1985), 440–442.
- [100] Muthuvel, K. Some results concerning Hamel bases, *Real Anal. Exchange* **18**(2) (1992-93), 571–574.
- [101] Mycielski, J. Independent sets in topological algebras, *Fund. Math.* **55** (1964), 139–147.
- [102] Mycielski, J. Algebraic independence and measure, *Fund. Math.* **61** (1967), 165–169.

- [103] Natkaniec, T. On category projections of cartesian product $A \times A$, *Real Anal. Exchange* **10** (1984–85), 233–234.
- [104] Natkaniec, T. On projections of planar sets, *Real Anal. Exchange* **11** (1985–86), 411–416.
- [105] Natkaniec, T. Almost Continuity, *Real Anal. Exchange* **17** (1991–92), 462–520.
- [106] Natkaniec, T. The density topology can be not extraresolvable, *Real Anal. Exchange*, to appear. (Preprint* available.)
- [107] Nowik, A. Additive properties and uniformly completely Ramsey sets, *Colloq. Math.* **82** (1999), 191–199.
- [108] Nowik, A. Possibly there is no uniformly completely Ramsey null set of size 2^ω , *Colloq. Math.* **93** (2002), 251–258. (Preprint* available.)
- [109] Olevskii, A. Ulam-Zahorski problem on free interpolation by smooth functions, *Trans. Amer. Math. Soc.* **342** (1994), 713–727.
- [110] Reclaw, I. Every Lusin set is undetermined in the point-open game, *Fund. Math.* **144** (1994), 43–54.
- [111] Repický, M. Perfect sets and collapsing continuum, *Comment. Math. Univ. Carolin.* **44**(2) (2003), 315–327.
- [112] Rosłanowski, A, and Shelah, S. Measured Creatures, preprint.
- [113] Sacks, G. Forcing with perfect sets, in *Axiomatic Set Theory*, ed. D. Scott, *Proc. Symp. Pure Math.* **13**(1), Amer. Math. Soc. (1971), 331–355.
- [114] Saks, S. *Theory of the Integral*, 2nd ed., Monografie Mat., vol. 7, PWN, Warsaw, 1937.
- [115] Shelah, S. Possibly every real function is continuous on a non-meagre set, *Publ. Inst. Mat. (Beograd) (N.S.)* **57**(71) (1995), 47–60.
- [116] Sierpiński, W. Sur un ensemble non dénombrable dont toute image continue est de 1-re catégorie, *Bull. Intern. Acad. Polon. Sci. A* 1928, 455–458. Reprinted in *Oeuvres Choiesies*, vol. II, 671–674.
- [117] Sierpiński, W. Sur un ensemble non dénombrable dont toute image continue est de mesure null, *Fund. Math.* **11** (1928), 302–304. Reprinted in *Oeuvres Choiesies*, vol. II, 702–704.
- [118] Sierpiński, W. Remarque sur les suites infinies de fonctions (Solution d’un problème de M. S. Saks), *Fund. Math.* **18** (1932), 110–113.
- [119] Sierpiński, W. Sur les translations des ensembles linéaires, *Fund. Math.* **19** (1932), 22–28. Reprinted in *Oeuvres Choiesies*, vol. III, 95–100.
- [120] Sierpiński, W. *Hypothèse du continu*, Monografie Matematyczne, Tom IV, Warsaw 1934.
- [121] Sikorski, R. *Boolean Algebras*, 3rd ed., Springer-Verlag, New York, 1969.
- [122] Simon, P. Sacks forcing collapses $\mathfrak{c}$ to $\mathfrak{b}$, *Comment. Math. Univ. Carolin.* **34**(4) (1993), 707–710.
- [123] Steprāns, J. Sums of Darboux and continuous functions, *Fund. Math.* **146** (1995), 107–120.
- [124] Steprāns, J. Decomposing Euclidean space with a small number of smooth sets, *Trans. Amer. Math. Soc.* **351** (1999), 1461–1480. (Preprint* available.)
- [125] Todorčević, S. *Partition problems in topology*, Contemp. Math. **84**, Amer. Math. Soc., Providence, RI, 1989.

- [126] Todorchevich, S., and Farah, I. *Some Applications of the Method of Forcing*, Yenisei Series in Pure and Applied Mathematics, Yenisei, Moscow; Lycée, Troitsk, 1995.
- [127] Ulam, S. *A Collection of Mathematical Problems*, Interscience Tracts in Pure and Applied Mathematics **8**, Interscience Publishers, New York-London, 1960.
- [128] Vaughan, J.E. Small uncountable cardinals and topology, in *Open Problems in Topology*. ed. J. van Mill and G. M. Reed, North-Holland, Amsterdam (1990), 195–216.
- [129] Whitney, H. Analytic extensions of differentiable functions defined in closed sets, *Trans. Amer. Math. Soc.* **36** (1934), 63–89.
- [130] Zahorski, Z. Sur l'ensemble des points singulière d'une fonction d'une variable réelle admettant des dérivées des tous orders, *Fund. Math.* **34** (1947), 183–245.
- [131] Zapletal, J. *Descriptive Set Theory and Definable Forcing*, Mem. Amer. Math. Soc. **167**, 2004.