

PUBLICATIONS OF TAMÁS SZŐNYI

Book

1. *Finite geometries*, in Hungarian, (with György Kiss), *Polygon Kiadó*, Szeged, 2001, 217 pages.
2. *Finite geometries*, (with György Kiss), *Taylor and Francis, CRC press*, 2019, 337 pages. (extended and translated version of 1.)

Papers in journals

1. “Small complete arcs in Galois planes”, *Geom. Ded.* **18** (1985), 161–172.
2. “On the sharpness of a theorem of B. Segre” (with Endre Boros), *Combinatorica*, **6** (1986), 261–268.
3. “Sperner Extensions of Affine Spaces” (with Endre Boros, and Ferenc Wettl) *Geom. Ded.* **22** (1987), 163–172.
4. “Note on the order of magnitude of k for complete k -arcs in $PG(2, q)$ ”, *Discrete Math.* **66** (1987), 261–264.
5. “On complexes in a finite abelian group”, (with Ferenc Wettl), *Proc. Japan. Acad. Sci.* **64** (1988), I: 245–248, II: 286–287.
6. “Complete arcs in non-desarguesian planes”, *Ars. Comb.* **25C** (1988), 169–178.
7. “Arcs and k -sets with large sets of nuclei in Hall planes”, *J. of Geometry* **34** (1989), 187–194.
8. “Planar function over finite fields” (with Lajos Rónyai), *Combinatorica* **9** (1989), 315–320.
9. “Planar functions over the reals”, *Note di Mat. (Lecce)* **X** (1990), 59–65.
10. “Irregular weightings of finite projective planes”, (with Jenő Lehel), *Ars. Comb.* **29C** (1990), 160–167.
11. “Note on the existence of large minimal blocking sets in $PG(2, q)$ ”, *Combinatorica* **12** (1992), 227–235.
12. “Sets in a finite plane with few intersection numbers and a distinguished point”, (with James Hirschfeld), *Discrete Math.* **97** (1991), 229–242.
13. “Large arcs and minimal blocking sets in planes of square order”, (with James Hirschfeld), *Europ. J. Comb.* **12** (1991), 499–511.
14. “Small complete arcs in André planes of square order”, *Graphs and Combinatorics* **7** (1991), 279–287.
15. “Note on the structure of semiovals”, (with Aart Blokhuis), *Discr. Math.*, **106/107** (1992), 61–65.

16. “Irregular weightings of 1-designs”, (with Aart Blokhuis), *Discrete Math.* **131** (1994), 339–343.
17. “Sets having a large number of nuclei on a conic” (with Aart Blokhuis), *J.C.T. (A)* **63** (1993) 164–173.
18. “Note on a problem of Kaneta concerning arcs in $PG(3, q)$ ”, (with Leo Storme), *Atti Sem. Mat. Fis. Univ. Modena* **XLI** (1993) 409–416.
19. “The number of directions determined by a function f on a finite field”, (with Aart Blokhuis and Andries Brouwer), *J. C. T. (A)* **70** (1995), 349–353.
20. “Caps in $PG(n, q)$, q even, $n \geq 3$ ”, (with Leo Storme), *Geo. Ded.*, **45** (1993) 163–169.
21. “Intersection of arcs and normal rational curves in spaces of even characteristic (with Leo Storme), *J. of Geometry* **51** (1994) 150–166
22. “Space-filling subsets of normal rational curves”, (with Gábor Korchmáros and Leo Storme) *J. Stat. Planning and Inference*, **58** (1997), 93–110.
23. “On the number of directions determined by a set of points in an affine Galois plane”, *J. C. T. (A)* **74** (1996), 141–146.
24. “On cyclic caps in projective spaces” *Designs, Codes, and Cryptography* **8** (1996), 327–332.
25. “Caps in projective spaces of odd order, (with Gábor Nagy), *J. of Geom.* **59** (1997), 103–113.
26. “Two remarks on blocking sets and nuclei in planes of prime order”, (with András Gács and Péter Sziklai), *Designs, Codes and Cryptography* **10** (1997), 29–39.
27. “Some multiply derived translation planes with $SL(2, 5)$ as an inherited collineation group in the translation complement” (with Arrigo Bonisoli and Gábor Korchmáros), *Designs, Codes and Cryptography* **10** (1997), 109–114.
28. “Blocking sets of almost Rédei type” (with Aart Blokhuis and Ruud Pellikaan), *J.C.T. (A)* **78** (1997), 141–150.
29. “Blocking sets in Desarguesian affine and projective planes”, *Finite Fields and their Appl.* **2** (1997), 187–202.
30. “Blocking sets and algebraic curves”(with Péter Sziklai), *Rend. Circolo Mat. Palermo* **51** (1998), 71–86.
31. “Caps embedded in Grassmannian Surfaces” (with Gary L. Ebert and Klaus Metsch), *Geom. Dedicata* **70** (1998), 181–196.
32. “ (k, n) -arcs in Galois planes, *Rend. Circ. Mat. Palermo* **53** (1998), 193–198.
33. “Around Rédei’s theorem”, *Discrete Math.* **208/9** (1999), 557–575
34. “On the number of slopes of the graph of a function defined on a finite field” (with Aart Blokhuis, Simeon Ball, Andries Brouwer and Leo Storme), *J. Comb. Theory Ser. (A)* **86** (1999), 187–196.
35. “The number of rational points on Fermat curves over finite fields and cyclic subsets of projective spaces” (with Gábor Korchmáros), *Finite Fields and Appl.* **5** (1999), 206–217

36. “On the embedding of (k, p) -arcs in maximal arcs”, *Designs, Codes and Cryptography* **18** (1999), 235–246.
37. “Blocking sets in Galois planes of square order” (with Olga Polverino and Zsuzsa Weiner), *Acta Sci. Math. (Szeged)* **65** (1999), 737–748.
38. “Multiple blocking sets in Desarguesian planes” (with Aart Blokhuis and Leo Storme), *J. London Math. Soc.*, **60** (1999), 321–332.
39. “Covers and blocking sets of classical generalized quadrangles”, (with Jörg Einfeld, Leo Storme and Péter Sziklai), *Discrete Math.* **238** (2001), 35–51.
40. “Small blocking sets in higher dimensions”, (with Zsuzsa Weiner), *J.C.T. (A)* **95** (2001), 88–101.
41. “On embedding large (k, n) -arcs and partial unitals”, (with Éva Hadnagy), *Ars Combinatoria* **56** (2002), 299–308.
42. “On maximal partial spreads in $PG(n, q)$ ” (with András Gács), *Designs, Codes, and Cryptography* **29** (2003), 123–129.
43. “On sets without tangents in Galois planes of even order”, (with Aart Blokhuis and Zsuzsa Weiner), *Designs, Codes, and Cryptography* **29** (2003), 91–98
44. “On the spectrum of minimal blocking sets” (with András Gács and Zsuzsa Weiner), *J. of Geometry* **76** (2003), 256–281.
45. “On large minimal blocking sets” (with Antonello Cossidente, András Gács, Csaba Mengyán, Alessandro Siciliano and Zsuzsa Weiner), *J. Combinatorial Designs*, **13** (2005), 25–41.
46. “Defining sets for $PG(2, q)$ ”, (with Endre Boros, Krisztián Tichler), *Discrete Math.* **303** (2005), 17–31.
47. “On disjoint blocking sets” (with János Barát, Fernanda Pambianco, Stefano Marcugini), *J. Combinatorial Designs*, **14** (2006), 149–158.
48. “On Multiple blocking sets in Galois planes”, (with Aart Blokhuis, László Lovász, Leo Storme), *Adv. Geom.* **7** (2007), 39–53.
49. “Affinely regular polygons in an affine plane” (with Gábor Korchmáros), *Contributions to Discrete Mathematics* **3** (2008), 20–38 (electronic)
50. “Ferenc Kárteszi (1907-1989): a short biography” (with G. Korchmáros), *Contributions to Discrete Mathematics* **3** (2008), 3-5 (electronic)
51. “Graphs with the n -e.c. adjacency property constructed from affine planes”, (with Cathy Baker, Anthony Bonato, Julia Brown), *Discrete Math.* **308** (2008), 901–912.
52. “Random constructions and density results”, (with András Gács), *Designs, Codes and Cryptography* **47** (2008), 267–287.
53. “Directions in $AG(2, p^2)$ ”, (with A. Gács, L. Lovász), *Innovations in Incidence Geometry*, **6/7** (2009), 189–201.
54. “A Hilton-Milner theorem for vector spaces”, (with Aart Blokhuis, Andries Brouwer, Ameera Chowdhury, Péter Frankl, Tim Mussche, Balázs Patkós), *Electron. J. Combin.* **17** (2010), no. 1, Research Paper 71, 12 pp.
55. “Covering all points except one”, (with Aart Blokhuis, Andries Brouwer), *J. Algebraic Combin.* **32** (2010), 59-66.

56. “Small point sets of $\text{PG}(n, p^{3h})$ intersecting each line in $1 \pmod{p^h}$ points”, (with Nóra Harrach, Klaus Metsch, Zsuzsa Weiner), *J. Geom.* **98** (2010), 59–78.
57. “Proof of a conjecture of Metsch”, (with Zsuzsa Weiner), *J. Combin. Theory Ser. A* **118** (2011), 2066–2070.
58. “ q -analogues and stability”, (with Aart Blokhuis, Andries Brouwer, Zsuzsa Weiner), *J. Geom.* **101** (2011), 31–50.
59. “A stability theorem for lines in Galois planes of prime order” (with Zsuzsa Weiner), *Designs, Codes, and Cryptography* (2012), 103–108.
60. “On the chromatic number of q -Kneser graphs”, (with A. Blokhuis, A. E. Brouwer), *Designs, Codes, and Cryptography*, **65** (2012), 187–197.
61. “Cages, geometries and Zarankiewicz’ problem”, (with Gábor Damásdi, Tamás Héger), *Annales Univ. Eötvös Loránd* **LVI** (2013), 3–37.
62. “On the upper chromatic number of projective planes” (with G. Bacsó, T. Héger), *J. Combin. Designs*, **21** (2013), 585–602.
63. “Proof of a conjecture of Doković on the Poincaré series of the invariants of a binary form” (with A. Blokhuis, A.E. Brouwer), *Indag. Math.* **24** (2013), 766–773.
64. “Maximal cocliques in the Kneser graph on point-line flags in $\text{PG}(4, q)$ ”, (with A. Blokhuis, A. E. Brouwer), *European J. Combin.*, **35** (2014), 95–104.
65. “On the stability of small blocking sets” (with Zs. Weiner), *J. Alg. Combin.* **40** (2014), 279–292.
66. “On the stability of sets of even type” (with Zs. Weiner), *Adv. Math.* **267** (2014), 381–394.
67. “Blocking sets of the Hermitian unital” (with A. Blokhuis, A. E. Brouwer, D. Jungnickel, V. Krčadinac, S. Rottey, L. Storme, P. Vandendriessche), *Finite Fields and Appl.* **35** (2015), 1–15.
68. “Blocking and double blocking sets in finite planes”, (with J. De Beule, T. Héger, G. Van De Voorde), *Electronic. Journal of Combin.* **23** P 2.5. (online)
69. “Integral automorphisms of affine spaces over a finite field”, (with I. Kovács, K. Kutnar and János Ruff), *Designs, Codes, and Cryptography*, **84** (2017), 181–188.
70. “Inherited unitals in Moulton planes”, (with G. Korchmáros, A. Sonnino), *Ars Math. Contemporanea* **18** (2018), 251–265.
71. “Embedding of classical polar unitals in $\text{PG}(2, q^2)$ ”, (with G. Korchmáros, A. Siciliano), *Journal of Combinatorial Theory Ser. A* **153** (2018), 67–75.
72. “Stability of $k \pmod{p}$ multisets and small weight codewords of the code generated by the lines of $\text{PG}(2, q)$ ”, (with Zs. Weiner), *Journal of Combinatorial Theory Ser. A* **157** (2018), 321–333.
73. “Inherited conics in Hall planes” (with A. Blokhuis, I. Kovács, G. P. Nagy), *Discrete Mathematics* **342** (2019), 1098–1107.
74. “Relative blocking sets of unions of Baer subplanes” (with A. Blokhuis, L. Storme), *Designs, Codes, and Cryptography* **87** (2019), 865–877.
75. “On the upper chromatic number and multiple blocking sets of $\text{PG}(n, q)$ ” (with Z. L. Blázsik, T. Héger), *Journal of Combinatorial Designs* **28** (2020), 118–140.

76. “On the stability of Baer subplanes” (with Zs. Weiner), *Europ. J. Combinatorics* **94** (2021)
77. “On the balanced upper chromatic number of finite projective planes”, (with Z. L. Blázsik, A. Blokhuis, Š. Miklavič, Z. L. Nagy), *Discrete Mathematics* **342** (2021),
78. “A stability result for girth-regular graphs of even girth”, (with Gy. Kiss, Š. Miklavič), *J. Graph Theory*, **100** (2022), 163–181.

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1. “Beágyazási problémák desarguesi síkokon”, (with Ferenc Wettl), *Periodica Polytechnica* (1983), 111–116.
2. “Arcs in cubic curves and 3-independent subsets”, *Proc. 7th Hungarian Coll. on Combinatorics* (1988), 499–508.
3. “Complete arcs in non-desarguesian planes”, *Conf. Sem. Mat. Univ. Bari*, **233**, (1990)
4. “Combinatorial problems for abelian groups arising from geometry”, *Periodica Polytechnica* **19** (1991), 91–100.
5. “ k -sets in $PG(2, q)$ with a large set of internal nuclei”, in: *Proc. Combinatorics’88*, (A. Barlotti et al. szerk.), Mediterranean Press, 1991, 449–458.
6. “Complete arcs in $PG(2, q)$: a survey”, *Quad. Sem. Geom. Comb. Univ. “La Sapienza”*, *Roma n.* **94** (1989)
7. “Maximal strong representative systems and minimal blocking sets”, (with Tibor Illés and Ferenc Wettl), *Mitt. Math. Sem. Giessen* **201** (1991), 97–107.
8. “A problem on squares in a finite field and its application to geometry” (with James Hirschfeld), *Proc. 3rd Isle of Thorns Conf.*, Oxford U.P., 149–156.
9. “Projective spaces and colouring of $K_m \times K_n$ ”, (with Ralph Faudree and András Gyárfás), in: *Proc. Conf. “Sets, Graphs and Numbers”*, *Hungary 1991*, 273–278.
10. “Orthogonally divergent spreads of Hermitian curves” (with Ron Baker, Gary L. Ebert and Gábor Korchmáros), *Proc. 2nd Intern. Deinze Conf. on Finite Geometry* (F. De Clerck et al. szerk.), Cambridge Univ. Press, 17–30.
11. “Blocking sets in finite planes and spaces”, *Ratio Math.* **5** (1992) 93–106.
12. “Intersection of arcs and normal rational curves in spaces of odd characteristic”, (with Leo Storme), *Proc. 2nd Intern. Deinze Conf. on Finite Geometry*, (F. De Clerck et al. szerk.), Cambridge Univ. Press, 359–378.
13. “Complete arcs in planes and spaces, independent subsets in Abelian groups and error-correcting codes”, in: *Giornate di Geometrie Combinatorie* (Perugia) (G. Faina, G. Tallini eds), 1993, 57–80.
14. “Some applications of algebraic curves in finite geometry and combinatorics”, in: *Surveys in Combinatorics, Proc. British Comb. Conf. 1997* (ed. R. A. Bailey), 197–236.

15. “Blocking sets in projective spaces”, (with A. Blokhuis, P. Sziklai), in: *Current research topics in Galois geometry* (eds: J. De Beule, L. Storme), NOVA Publishers, 2011, pp. 61-84.

To appear (published online)

1. “On a relation between bipartite biregular cages, block designs and generalized polygons” (with G. Araujo-Pardo, R. Jajcay, A. Ramos-Rivera), *Journal of Combinatorial Designs*, (published online 23 March, 2022)

Submitted

1. “On large minimal blocking sets in $PG(2, q^2)$ ”, (with Zs. Weiner), submitted
2. “The extended coset leader weight enumerator of a twisted cubic code”, (with A. Blokhuis, R. Pellikaan), submitted

Unpublished manuscripts

1. “Strongly regular graphs from integral point sets in even dimensional affine spaces” (with G. Korchmáros, F. Romaniello), arXiv preprint arXiv:1811.06765

Edited volumes

1. “Sets, graphs, and numbers”, (eds.: G. Halász, L. Lovász, D. Miklós, T. Szőnyi) *Colloquia Societatis János Bolyai* **60** North-Holland, 1992.
2. “Combinatorics, Paul Erdős is Eighty”, 2 volumes (eds.: D. Miklós, V.T. Sós, T. Szőnyi) *Bolyai Society Math. Studies* **1,2** János Bolyai Math. Soc., Budapest, 1993, 1996.
3. “Combinatorics 2002”, Special issue **301** of *Discrete Mathematics*, Guest eds.: J. Hirschfeld, B. Jackson, G. Korchmáros, G. Lunardon, T. Szőnyi, Elsevier, 2005.
4. “Special issue dedicated to the centenary of the birth of Ferenc Kárteszi”, *Contributions to Discrete Mathematics* **3** (2008), Guest eds.: G. Korchmáros, T. Szőnyi, University of Calgary, 2008.
5. “Fete of Combinatorics and Computer Science” (eds.: G. O. H. Katona, A. Schrijver, T. Szőnyi), *Bolyai Society Math. Studies* **20** Springer, 2010.

Dissertations

1. “Teljes ívek Galois-geometriákban” (“Complete arcs in Galois geometries”), thesis for the title Dr. univ., ELTE, Budapest, (1987)
2. “Aszimptotikus eredmények a véges geometriákban” (Asymptotic results in finite geometries”), thesis for the title Candidate of Sciences of the Hungarian Academy, 1990
3. “Kombinatorikus problémák a Galois-geometriákban” (“Combinatorial problems in Galois geometries”), thesis for the title Doctor of the Academy, Hungarian Academy of Sciences, 1999

Lecture Notes

1. “Symmetric structures”, 162 pages, Typotex, 2014, published online