

## Publikacje Instytutu Matematyki za rok 2019 – Journal Citation Reports

1. Dembowski M., Wolnik B., Bołt W. [i in.] Two-dimensional Affine Continuous Cellular Automata solving the relaxed density classification problem, *Journal of Cellular Automata*, vol. 14, nr 3-4, 2019, ss. 191-212 (40 pkt.)
2. Dzedzej A., Wolnik B., Dziemiańczuk M. [i in.] A two-layer representation of four-state reversible number-conserving 2D cellular automata, *Journal of Statistical Mechanics-Theory and Experiment*, vol. 2019, 2019, ss. 1-17 (70 pkt.),
3. Filipów R., Tryba J., Ideal convergence versus matrix summability, *Studia Mathematica* 245 (2019), no. 2, 101-127 (100 pkt.).
4. Gromadzki G., A.D. Mednykh, I.A. Mednykh, On automorphisms of graphs and Riemann surfaces acting with fixed points, *Analysis and Mathematical Physics*, 9 (4) 2021-2031 (2019) (100 pkt.)
5. Gromadzki G., On the singular nerve of the moduli space of compact Riemann surfaces, *Fundamenta Mathematicae* 245 (2019), 127-14 (100 pkt.)
6. Grzegorek E., Labuda I., Partitions into thin sets and forgotten theorems of Kunugi and Luzin-Novikow, *Colloquium Mathematicum*, 155/2 (2019), 267-285 (70 pkt.)
7. Gulgowski J., Stefański T., Recurrence scheme for FDTD-compatible discrete Green's function derived based on properties of Gauss hypergeometric function, *Journal of Electromagnetic Waves and Applications*, vol. 33, nr 5, 2019, ss. 637-653, DOI:10.1080/09205071.2019.1568308 (40 pkt.)
8. Gulgowski J., Bugajewski D., On the characterization of compactness in the space of functions of bounded variation in the sense of Jordan, *Journal of Mathematical Analysis and Applications*, Volume 484, Issue 2, 15 April 2020, 123752 (70 pkt.)
9. Gulgowski J., On integral bounded variation, *Revista de la Real Academia de Ciencias Exactas Fisicas y Naturales Serie A-Matematicas*, vol. 113, nr 2, 2019, ss. 399-422, DOI:10.1007/s13398-017-0482-8 (100 pkt.)
10. Gulgowski J., Stefański T.P., Electromagnetic-based derivation of fractional-order circuit theory, *Communications in Nonlinear Science and Numerical Simulation*, vol. 79, 2019, ss. 1-13, Numer artykułu:104897, DOI:10.1016/j.cnsns.2019.104897 (100 pkt.)
11. Gulgowski J., Stefański T.P., Signal propagation in electromagnetic media described by fractional-order models, *Communications in Nonlinear Science and Numerical Simulation*, vol. 82, 2020, ss. 1-16, Numer artykułu:105029, DOI:10.1016/j.cnsns.2019.105029 (100 pkt.)
12. Gulgowski J., Uniform continuity of nonautonomous superposition operators in  $\Lambda BV$ -spaces, *Forum Mathematicum*, vol. 31, nr 3, 2019, ss. 713-726, DOI:10.1515/forum-2018-0214 (100 pkt.)
13. Gulgowski J.; Hille S.; Szarek T.; Ziemiańska, M., Central limit theorem for some non-stationary Markov chains, *Studia Mathematica* 246, 2019, no. 2, 109–131 (100 pkt.)
14. Jabłonowski M., Minimal hard surface-unlink and classical unlink diagrams, *Journal of Knot Theory and Its Ramifications*, Vol. 28 (2019) 1940002, (70 pkt.)
15. Kamedulski B., Bartłomiejczyk P., Nowak-Przygodzki P., Degree product formula in the case of a finite group action, *New York Journal of Mathematics* 25, 2019, 362–373 (70 pkt.)

16. Kozłowska-Walania E., Extremal configurations of three or four symmetries on a Riemann surface, *Bulletin of the Korean Mathematical Society* 56 (1), 2019, 73-82 (40 pkt.)
17. Kropielnicka K., Auzinger W., H. Hofstätter, O. Koch, P. Singh, Time adaptive Zassenhaus splittings for the Schrödinger equation in the semiclassical regime, *Applied Mathematics and Computation*. 362 (2019), 124550, 10 pp., arXiv:1902.04324v1 (100 pkt.)
18. Kropielnicka K., J. A. Carrillo, P. Gwiazda, A. Marciniak-Czochra, The Escalator Boxcar Train Method for a System of Aged-structured Equations in the Space of Measures, *SIAM Journal on Numerical Analysis* 57 (2019), no. 4, 1842– 1874, arXiv:1806.01770v1 (140 pkt.)
19. Kwela A., Haar-smallest sets”, *Topology and its Applications* 267 (2019), 106892 (70 pkt.)
20. Kwela A., Tryba J., Popławski M., Swaczyna J., Properties of simple density ideals, *Journal of Mathematical Analysis and Applications* 477(1) 2019, 551-575 (70 pkt.)
21. Lertchoosakul Poj, Bednařík Dušan, Marques Diego [i in.], The generalized and modified Halton sequences in Cantor bases, *Monatshefte Fur Mathematik*, vol. 188, nr 1, 2019, ss. 1-29, DOI:10.1007/s00605-018-1225-4 (70 pkt.)
22. Leszczyński H., Dudziuk G., Lachowicz M., Szymańska Z., A simple model of collagen remodeling. *Discrete and Continuous Dynamical Systems-Series B* 24 (5) (100 pkt.);
23. Leszczyński H., Lachowicz M., Topolski K., Self-organization with small range interactions: Equilibria and creation of bipolarity, *Applied Mathematics and Computation* 343, 156-166 (100 pkt)
24. Lutowski R., Petrosyan N., Popko J., Szczepański A., Spin structures of flat manifolds of diagonal type, *Homology Homotopy and Applications*, 21(2) 2019, 333-344 (100 pkt.)
25. Lutowski R., Emiliano Acri, Leandro Vendramin, Retractability of solutions to the Yang-Baxter equation and p-nilpotency of skew braces, *International Journal of Algebra and Computation*, doi: 10.1142/S0218196719500656 (70 pkt.)
26. Natkaniec T., Sieg W., On convergence of sequences of functions possessing closed graphs, *Georgian Mathematical Journal* 26(4) (2019), 573-582 (40 pkt.).
27. Natkaniec T., W. Sieg, Some unpublished Reclaw theorems and their applications to Baire-star-one functions, *Turkish Journal of Mathematics*, 43 (2019), 1148-1160 (40 pkt.)
28. Niebrzydowski M., A. Pilitowska, A. Zamojska-Dzienio, Knot-theoretic ternary groups, *Fundamenta Mathematicae* 247 2019, 299-320 (100 pkt.)
29. Przytycki J.H., Dabkowski M.K., Catalan states of lattice crossing: An application of Plucking polynomial, *Topology and its Applications*, Volume 254, 12-28 (70 pkt.)
30. Przytycki J.H., Nonorientable, incompressible surfaces in punctured-torus bundles over  $S^1$ , *Revista de la Real Academia de Ciencias Exactas Fisicas y Naturales Serie A-Matematicas*, vol. 113 (3) 2019, 1975-2000, DOI:10.1007/s13398-018-0592-y (100 pkt.)
31. Przytycki J.H., Sikora A.S., Skein algebras of surfaces, *Transactions of the American Mathematical Society*, 371 (2), 2019, 1309-1332 (140 pkt.)
32. Przytycki J.H., Z.Cheng, S.Mukherjee, X.Wang, S.Y.Yang, Rooted trees with the same plucking polynomials, *Osaka Journal of Mathematics*, 56, 2019, 661—674 (70 pkt.)

33. Pykacz, J., Nanasiova O., Valaskova, L., Cipkova, K., On extension of joint distribution functions on quantum logics, *International Journal of Theoretical Physics* 58 2019 <https://doi.org/10.1007/s10773-019-04322-16> 6 (40 pkt.)
34. Pykacz, J., The many-valued logic of quantum mechanics, *International Journal of Theoretical Physics* 58 (2019) opublikowany online 10.04.2019 DOI: 10.1007/s10773-019-04050-6 (40 pkt.)
35. Szafraniec Z., On bifurcations of cusps. *Journal of the Mathematical Society of Japan* 71 (2019), 555-567 (70 pkt.)
36. Wolnik B., Bołt W., Bołt A., [i in.] A statistical approach to the identification of diploid cellular automata based on incomplete observations, *BioSystems*, nr 186, 2019, ss. 1-12 (70 pkt.),
37. Wolnik Barbara, De Baets Bernard: All binary number-conserving cellular automata based on adjacent cells are intrinsically one-dimensional, *Physical Review E*, vol. 100, nr 2, 2019, ss. 1-6 (100 pkt.)
38. Wrzosek M., Newton's method for stochastic functional evolution equations in Hilbert spaces, *MATEMATIKA*, vol. 65, nr 3, 2019, ss. 542-556, DOI:10.1112/S0025579319000020 (100 pkt.)

## **LISTA PUBLIKACJI INSTYTUTU MATEMATYKI ZA ROK 2019 – POZOSTAŁE**

### **Punktowane:**

1. Condon M., Iserles A., Kropielnicka K., Singh P., Solving the wave equation with multifrequency oscillations, *Journal of Computational Dynamics*, vol. 6, no 2, pp. 239–249, (2019) doi:10.3934/jcd.2019012 (100 pkt.)
2. Człapiński T., Karpowicz A., „Second order evolution differential functional equations with infinite delay”, *Commentationes Mathematicae*, vol. 58, nr 1-2, 2018, ss. 93- (w zeszłorocznym sprawozdaniu ujęta jako zaakceptowania do druku) 104 (9 pkt.)
3. Filipów R., Pawłowicz M., Krzykowski G., Balcerska A., J. Wojtkiewicz, The ACE rs4340 polymorphism as genetic modulator of gender-specific trends in diabetic ketoacidosis development at onset of type 1 diabetes in children, *Polish Annals of Medicine* 26 (2019), no. 1, 41-47 (40 pkt.).
4. Klinga P., Kwela A., Staniszewski M., Size of the set of attractors for iterated function systems, *Chaos, Solitons & Fractals* 128 (2019), 104-107 (70 pkt.).
5. Lachowicz M, Leszczyński H., Puźniakowska–Gałuch E., Diffusive and anti-diffusive behavior for kinetic models of opinion dynamics, *Symmetry* 11 (8), 1024 (70pkt)
6. Leszczyński H., Lademan K., Tkacz-Śmiech K., Bożek B., Zajusz M., Danielewski M., On the Matano plane position in multicomponent diffusion couples, *Nano Hybrids and Composites* 26, 20-29 (20 pkt).
7. Natkaniec T., Szuca P., On the ideal convergence of sequences of Świątkowski functions, *European Journal of Mathematics*, 5(1) (2019), 155-167 (40 pkt.).
8. Przytycki J.H., Mukherjee S., On rack homology of graphic quandles *Contemporary Mathematics, Nonassociative Mathematics and its Applications*, CONM Volume 721, February 2019, 183-198 (20 pkt.)

9. Pykacz, J., Bytner, P., Frąckiewicz, P., Example of a finite game with no Berge equilibria at all, *Games* 10,7 (2019) DOI:10/3390/g100100076 (40 pkt.)

#### **Niepunktowane:**

1. Gulowski J., Stefański T. P., Acceleration of the Discrete Green's Function Formulation of the FDTD Method Based on Recurrence Schemes, 2019 13<sup>th</sup> European Conference on Antennas and Propagation (EuCAP), Krakow, Poland, 2019, pp. 1-5.
2. Karpowicz A., Pagacz R., Gumienny P., „Matematyka: próbne arkusze maturalne: zestaw 5 poziom rozszerzony”, Oficyna Edukacyjna Krzysztof Pazdro, 2019.
3. Mrozek E., „Uczymy się z Bratkiem. Matematyka.” Podręcznik. Klasa 3. Wydawnictwo Pedagogiczne Operon, 2019.
4. Przytycki J.H. jest edytorem: Volume 28, Issue 11 (October 2019) Special Issue: Knots, Low-Dimensional Topology and Applications — Part I
5. Przytycki J.H., Adams Colin C., Gordon Cameron McA., Jones Vaughan F. R., Kauffman Louis H., Lambropoulou Sofia, Millett Kenneth C., Ricca Renzo, Szadanovic Radmila (red.): Knots, low-dimensional topology and applications: Knots in Hellas, International Olympic Academy, Greece, July 2016, Springer Proceedings in Mathematics & Statistics, nr 284, 2019, Springer International Publishing, ISBN 978-3-030-16030-2, [978-3-030-16031-9], 488 s., DOI:10.1007/978-3-030-16031-9

#### **REFERATY NA KONFERENCJACH NAUKOWYCH**

##### **Topological methods in dynamics and related topics, Uniwersytet w Nizhny Nowgorod, 3-6.01.2019**

- A. Zastrow, The period-set of a map from the Cantor-Set to itself

##### **Congreso Bional de la Real Sociedad Mathematica Espanola, Special Session: Loci of Riemann and Klein surfaces with automorphisms, 4-8.02.2019**

- E. Tyszkowska, Wygłoszenie referatu: Fixed points on asymmetric Riemann surfaces

##### **Szkoła Przygotowawcza do XXI Wykładu im. A. Jankowskiego, Kraków, 26-28.04.2019**

- M. Leśniak, Representations and characters oraz Classification of finite simple groups
- R. Lutowski, Introduction to local representation theory

##### **Real and complex singularities in Cargèse, Cargèse, Francja, 29.04-3.05.2019**

- Z. Szafraniec, On bifurcations of cusps,
- I. Krzyżanowska, A. Nowel - plakat „Effective counting of cross-cap singularities (with sign)”

##### **Quantum Information Revolution – Impact to Foundations?, Vaxjo (Szwecja) 9-13.06.2019**

- J. Pykacz, Fuzzy sets and many-valued logics in foundations of quantum mechanics

**Mini-konferencja z okazji XXI Wykładu im. A. Jankowskiego, 10-12.05.2019**

- R. Lutowski, Representation theory and flat manifolds

**5<sup>th</sup> Workshop in Real Analysis, Konopnica, Polska 15-16.06.2019**

- J. Tryba, Semiregular matrices and associated ideals
- R. Filipów, If I were a rich density

**Mathematical Methods and Models in Biosciences (BioMath), 16-22.06.2019, Będlewo**

- H. Leszczyński, tytuł referatu: Diffusion and antidiffusion vs. kinetic equations;
- M. Matusik, tytuł referatu: Straightened characteristic of McKendrick-von Forester equation.
- M. Wrzosek, tytuł referatu: Numerical solutions for blood flow in elastic vessels;

**Północne Spotkania Geometryczne, Białystok, 17-18.06.2019**

- A. Szczepański, Spajające grupy krystalograficzne

**Knots in Gdańsk III, Uniwersytet Gdański, 17-19.06.2019**

- M. Stukow, Roots of generators of the mapping class groups of a nonorientable Surface
- M. Leśniak, Torsion normal generators of the mapping class group of a nonorientable Surface
- A. Zastrow, A surface-complex embedded into  $R^4$  with homologically remarkable properties
- M. Jabłonowski, Yoshikawa eighth move and a minimal set of band moves.
- J. Przytycki, Second quandle homology and Schur multiplier (from Takasaki kei to Alexander quandle).
- M. Mroczkowski, Finitely and infinitely generated Kauffman bracket skein modules of Seifert manifolds.
- Witold Rosicki, On two different "knots" with infinite cyclic "knot Group".

**Gdansk-Krakow-Lodz-Warsaw Seminar in Singularity Theory, Warszawa 17-19.06.2019**

- A. Nowel, Intersection number and mappings into the space of matrices

**XI Forum of Partial Differential Equations, Będlewo, 23-29.06.2019**

- K. Kropielnicka, Compact splitting methods for Schrödinger equation and their consequences
- K. Lademann, Symplectic integrator for the Klein-Gordon equation with space- and time-dependent mass

**Summer Solstice Conference on Discrete Models of Complex Systems, Max Planck Institute for the Physics of Complex Systems, Dresden, Niemcy, 5-17.07.2019,**

- B. Wolnik, The split-and-perturb decomposition of numberconserving cellular automata,
- A. Dzedzej, Generating multi-state reversible and numberconserving cellular automata,

**Numerical solution of integral and differential equations, (NSIDE-2019), Gdańsk, 17-19.07.2019**

- K. Kropielnicka, Splitting methods for Schrödinger equations with time dependent potentials: many problems, many approaches
- K. Lademann, Symplectic integrator for the Klein-Gordon equation with space- and time-dependent mass

**Young Topologists Meeting, Lozanna, Szwajcaria, 22-26.07.2019**

- B. Kamedulski. Plakat pt. „Product property of equivariant degree under the action of a compact abelian Lie group”.

**SciCADE, International Conference on Scientific Computation and Differential Equations, University of Innsbruck, Austria, 22-26.07.2019**

- K. Kropielnicka, K. Lademann, Symplectic integrator for the Klein-Gordon equation with space- and time- dependent mass under possible influence of laser impulses
- K. Kropielnicka, O. Koch, W. Auzinger, H. Hofstätter, T. Jawecki, Pranav Singh, Adaptive exponential methods

**24<sup>th</sup> Central European Number Theory Conference, 1-6.09.2019, Komarno, Słowacja**

- J. Tryba, Densities and ideals

**Set-theoretic methods in topology and real functions theory, 9-13.09.2019, Koszyce, Słowacja**

- R. Filipów, If I were a rich density
- A. Kwela, Yet another ideal version of the bounding number
- J. Tryba, Ideal convergence and matrix summability

**Zjazd Austriackiego Towarzystwa Matematycznego, Politechnika w Vorarlbergu, Dornbirn (Vorarlberg, Austria) 16-20.09.2019**

- A. Zastrow,, Some observations on Archipelago-Groups

**The future of structure-preserving algorithms, ICMS, Edinburgh, 14-18.10.2019**

- K. Kropielnicka, Efficient splittings for Magnus expansions,

**Konferencja „Elementarne, ale niebanalne”, Sielpia 25-27.10.2019**

- A. Dzedzej, Automaty komórkowe, czyli wielka złożoność z prostych reguł,

**Warsztaty z nowoczesnej matematyki i jej zastosowań, 15-17.11.2019, Kraków**

- A. Nowel. Efektywne metody liczenia niezmienników rzeczywistych odwzorowań wielomianowych

### **Nikolaus Conference, RWTH Aachen, 6-7.12.2019**

- R. Lutowski, Flat manifolds with homogeneous holonomy representation

### **The special session of AMS on "Invariants of Knots and Spatial Graphs" at the AMS Fall Western Sectional Meeting**

- J.H. Przytycki, Conjecture on Yang-Baxter homology of cycle set (rumple) of Alexander numbering.
- J.H. Przytycki, Computational complexity of Khovanov homology.
- J.H. Przytycki Homology of Yang-Baxter operator yielded by Alexander numbering.

### **The AMS Spring Central and Western Joint Sectional Meeting University of Hawaii at Manoa, Honolulu, "Special Session on Algebraic and Combinatorial Structures in Knot Theory"**

- J.H. Przytycki, Second quandle homology from Schur multiplier.

### **Knots in Washington XLVIII, George Washington University, 10-12.05.2019**

- J.H. Przytycki, Second quandle homology from Schur multiplier (the historical perspective).

### **The special session "Borsuk and Eilenberg" devoted to topology, geometry, and homological algebra, at the Jubilee Congress of Polish Mathematicians in the centenary of PTM, Kraków, 3-7.09.2019**

- J.H. Przytycki Czy złożoność obliczeniowa homologii Khovanova warkoczy o danej liczbie pasm jest wielomianowa? (Is the computational complexity of Winding Khovanov homology of closed braids of given number of strings, polynomial?)

### **PRACE ZAAKCEPTOWANE DO PUBLIKACJI W ROKU SPRAWOZDAWCZYM**

1. E. Kozłowska-Walania, E. Tyszkowska, Fixed points on asymmetric Riemann surfaces  
Mediterranean Journal of Mathematics
2. E. Kozłowska-Walania, Symmetric Riemann surfaces with no isolated fixed points  
Mathematica Scandinavica
3. A. Parlak, M. Stukow, Roots of Dehn twists on nonorientable surfaces, Journal of Knot Theory and its Ramifications, online first doi.org/10.1142/S0218216519500779
4. A. Karpowicz, H. Leszczyński, Method of lines for a kinetic equation of swarm formation, Proceedings of SOTA-2018.
5. P. Zarzycki, „Modelowanie pojęć matematycznych”, Wydawnictwo UG.
6. R. Filipów, J. Tryba: „Representation of ideal convergence as a union and intersection of matrix summability methods”, Journal of Mathematical Analysis and Applications.
7. R. Filipów, J. Tryba, Densities for sets of natural numbers vanishing on a given family, Journal of Number Theory.
8. H. Leszczyński, M. Matusik, M. Wrzosek, Leap-frog method for stochastic functional wave equations, Electronic Transactions on Numerical Analysis

9. H. Leszczyński, Monika Wrzosek: Newton's method for nonlinear stochastic wave equations, *Forum Mathematicum* (zaakceptowano 30.12.2019, 100 pkt. MNiSzW);
10. H. Leszczyński, J. Jankowski, Fourier image methods for evolution equations of deep-water waves (*TASK QUarterly*)
11. P. Bartłomiejczyk, B. Kamedulski, P. Nowak-Przygodzki, Topological degree for equivariant gradient perturbations of an unbounded self-adjoint operator in Hilbert space, *Topology and Its Applications*
12. M. Jabłonowski, 'Independence of Yoshikawa eighth move and a minimal generating set of band moves', *Fundamenta Mathematicae*
13. M. Jabłonowski and L. Trojanowski, „On triple-crossing projections, moves on knots and links, and their minimal diagrams”, praca przyjęta do *J. Knot Theory Ramifications*.
14. M. Mroczkowski, “Knots with Hopf crossing number at most one” ,*Osaka Journal of Mathematics*
15. M. Niebrzydowski, Homology of ternary algebras yielding invariants of knots and knotted surfaces, *Algebraic & Geometric Topology*
16. Dzedzej A., Wolnik B., Nenca A. [i in.] :Efficient enumeration of three-state two-dimensional number-conserving cellular automata (*Information and Computation*)
17. Wolnik B., De Baets Bernard: Ternary reversible number-conserving cellular automata are trivial (*Information Sciences*)