

Wykaz dorobku naukowego, dydaktycznego i organizacyjnego

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1 Dorobek naukowy

1.1 Publikacje (w ramach doktoratu [1–3], po doktoracie [4–20])

- [20] S. Reich, R. Zalas, Comparing the methods of alternating and simultaneous projections for two subspaces, *Linear Algebra Appl.* **683** (2024), 235–263.
- [19] S. Reich, R. Zalas, Polynomial estimates for the method of cyclic projections in Hilbert spaces, *Numer. Algorithms* **94** (2023), 1217–1242.
- [18] V. I. Kolobov, S. Reich, R. Zalas, Finitely convergent deterministic and stochastic methods for solving convex feasibility problems, *Mathematical Programming* **194** (2022), 1163–1183.
- [17] V. I. Kolobov, S. Reich, R. Zalas, Finitely convergent iterative methods with over-relaxations revisited, *J. Fixed Point Theory Appl.* **21** (2021), article number 57.
- [16] S. Reich, R. Zalas, Error bounds for the method of simultaneous projections with infinitely many subspaces, *J. Approx. Theory* **272** (2021), 105648.
- [15] A. Cegielski, A. Gibali, S. Reich, R. Zalas, Outer approximation methods for solving variational inequalities defined over the solution set of a split convex feasibility problem, *Numer. Funct. Anal. Optim.* **41** (2020), 1089–1108.
- [14] A. Cegielski, S. Reich, R. Zalas, Weak, Strong and linear convergence of the CQ-method via the regularity of Landweber operators, *Optimization* **69** (2020), 605–636.
- [13] K. Barshad, S. Reich, R. Zalas, Strong coherence and its applications to iterative methods, *J. Nonlinear Convex Anal.* **20** (2019), 1507–1523.
- [12] C. Bargetz, V. I. Kolobov, S. Reich, R. Zalas, Linear convergence rates for extrapolated fixed point algorithms, *Optimization* **68** (2019), 163–195.
- [11] A. Cegielski, S. Reich, R. Zalas, Regular sequences of quasi-nonexpansive operators and their applications, *SIAM J. Optim.* **28** (2018), 1508–1532.
- [10] C. Bargetz, S. Reich, R. Zalas, Convergence properties of dynamic string averaging projection methods in the presence of perturbations, *Numer. Algorithms* **77** (2018), 185–209.
- [9] S. Reich, R. Zalas, The optimal error bound for the method of simultaneous projections, *J. Approx. Theory* **223** (2017), 96–107.
- [8] V. I. Kolobov, S. Reich, R. Zalas, Weak, strong and linear convergence of a double-layer fixed point algorithm, *SIAM J. Optim.* **27** (2017), 1431–1458.

*Wyrażam zgodę na przetwarzanie danych osobowych zawartych w mojej ofercie pracy dla potrzeb niezbędnych do realizacji procesu rekrutacji, prowadzonych przez Uniwersytet Zielonogórski z siedzibą w Zielonej Górze (65-417), przy ulicy Licealnej 9. Jednocześnie wyrażam zgodę na przetwarzanie przez ogłoszeniodawcę moich danych osobowych na potrzeby przyszłych rekrutacji.

- [7] S. Penfold, R. Zalas, M. Casiraghi, M. Brooke, Y. Censor, R. Schulte, Sparsity constrained split feasibility for dose-volume constraints in inverse planning of intensity-modulated photon or proton therapy, *Phys. Med. Biol.* **62** (2017), 3599–3618.
- [6] A. Gibali, S. Reich, R. Zalas, Outer approximation methods for solving variational inequalities in Hilbert space, *Optimization* **66** (2017), 417–437.
- [5] S. Reich, R. Zalas, A modular string averaging procedure for solving the common fixed point problem for quasi-nonexpansive mappings in Hilbert space, *Numer. Algorithms* **72** (2016), 297–323.
- [4] A. Gibali, S. Reich, R. Zalas, Iterative methods for solving variational inequalities in Euclidean space, *J. Fixed Point Theory Appl.* **17** (2015), 775–811.
- [3] A. Cegielski, R. Zalas, Properties of a class of approximately shrinking operators and their applications, *Fixed Point Theory* **15** (2014), 399–426.
- [2] A. Cegielski, A. Gibali, S. Reich, R. Zalas, An algorithm for solving the variational inequality problem over the fixed point set of a quasi-nonexpansive operator in Euclidean space, *Numer. Funct. Anal. Optim.* **34** (2013), 1067–1096.
- [1] A. Cegielski, R. Zalas, Methods for variational inequality problem over the intersection of fixed point sets of quasi-nonexpansive operators, *Numer. Funct. Anal. Optim.* **34** (2013), 255–283.

1.2 Referaty na konferencjach naukowych

- 25. *Polynomial estimates for the method of cyclic projections in Hilbert spaces*, ORSIS – the annual meeting of the Israeli Operations Research Society (01 – 02 V 2023), Tel Aviv, Izrael.
- 24. *Polynomial estimates for the method of cyclic projections in Hilbert spaces*, AMS Fall Central Sectional Meeting, (17 – 18 IX 2022), El Paso, USA, prezentacja zdalna.
- 23. *Polynomial estimates for the method of cyclic projections in Hilbert spaces*, A workshop on Nonlinear Functional Analysis and Its Applications in memory of Professor Ronald E. Bruck (04 – 06 IV 2022), Hajfa, Izrael.
- 22. *Error bounds for the method of simultaneous projections with infinitely many subspaces*, Workshop on Optimization and Operator Theory dedicated to Professor Lev Bregman on the occasion of his 80th birthday (15 – 17 XI 2021), Hajfa, Izrael.
- 21. *Error bounds for the method of simultaneous projections with infinitely many subspaces*, AMS Fall Central Sectional Meeting (formerly at University of Texas at El Paso) (12 – 13 IX 2020), El Paso, USA, prezentacja zdalna.
- 20. *Convergence of the CQ-method via the regularity of Landweber operators*, Analysis Seminar Innsbruck (15 – 17 VI 2019), Innsbruck, Austria.
- 19. *Finitely convergent projection methods*, 30th European Conference on Operational Research (23 – 26 VI 2019), Dublin, Irlandia.
- 18. *Finitely convergent projection methods*, ORSIS – the annual meeting of the Israeli Operations Research Society (13 – 14 V 2019), Kibutz Shefayim, Izrael.
- 17. *Convergence properties of fixed point algorithms in the presence of perturbations* 28th European Conference on Operational Research (08 – 11 VII 2018), Valencia, Hiszpania.

16. *Regular operators in fixed point problems*, Perspectives in Modern Analysis (28 – 31 V 2018), Holon, Izrael.
15. *Regular operators in feasibility*, Annual Israeli Mathematical Union Meeting (24 V 2018), Technion, Hajfa, Izrael.
14. *The optimal error bound for the method of simultaneous projections*, ORSIS – the annual meeting of the Israeli Operations Research Society (13 – 14 V 2018), Beer-sheba, Izrael.
13. *Linear convergence rate of extrapolated fixed point algorithms*, German-Israeli Research Workshop on Optimization (16 X – 19 X 2017), Hajfa, Izrael.
12. *The optimal error bound for the method of simultaneous projections*, 7th German-Polish Conference on Optimization (27 VIII – 01 IX 2017), Bedlewo, Polska.
11. *Convergence Properties of Fixed Point Algorithms in the Presence of Perturbations*, Annual Israeli Mathematical Union Meeting (25 – 28 V 2017), Acre, Izrael.
10. *Outer approximation methods for solving variational inequalities in Hilbert space*, Workshop on Nonlinear Analysis and Optimization (07 II 2017), Hajfa, Izrael.
9. *Weak, strong and linear convergence of a double-layer fixed point algorithm*, 28th European Conference on Operational Research (03 – 06 VII 2016), Poznań, Polska.
8. *Weak, strong and linear convergence of a double-layer fixed point algorithm*, XIVth EUROPT 2016 Workshop on Advances in Continuous Optimization (01 – 02 VII 2016), Warszawa, Polska.
7. *Application of quasi-nonexpansive mappings to variational inequalities*, 6th German-Polish Conference on Optimization (28 II – 04 III 2014), Wittenberg, Niemcy, **zapro-szony referat**.
6. *Iterative methods for solving variational inequalities in Hilbert spaces*, 16th French-German-Polish Conference on Optimization (23 – 27 IX 2013), Kraków, Polska.
5. *Approximately shrinking operators and their applications to variational inequalities*, 4th International Conference on Continuous Optimization (29 VII – 1 VIII 2013), Caparica-Lisbon, Portugalia.
4. *Iterative methods for solving variational inequalities*, 11th EUROPT Workshop on Advances in Continuous Optimization, (26 – 28 VI 2013), Florence, Italy.
3. *Variational inequalities with applications*, XLI Conference on application of mathematics, (3 – 11 IX 2012), Zakopane Kościelisko, Polska.
2. *Generalized hybrid steepest descent method for variational inequality problem over the finite intersection of fixed point sets*, The 10th International Conference on Fixed Point Theory and its Applications (9 – 15 VII 2012), Cluj-Napoca, Rumunia.
1. *Generalized hybrid steepest descent methods for some variational inequality problem*, 5th German Polish Conference on Optimization, Methods and Applications (9 – 13 XI 2011), Dobczyce, Kraków, Polska.

1.3 Pozostałe referaty

19. *Regularity of the product of two relaxed cutters with relaxation parameters beyond two* (23 I 2024), Nonlinear Analysis and Optimization Seminar, Department of Mathematics, Technion, Hajfa, Izrael.

18. *Polynomial estimates for the method of cyclic projections in Hilbert spaces* (23 XI 2023), Seminarium z równań funkcyjnych, Instytut Matematyki, Uniwersytet Zielonogórski, Zielona Góra, Polska.
17. *Comparing the methods of alternating and simultaneous projections for two subspaces* (25 X 2023), Seminarium naukowe Instytutu Matematyki, Uniwersytet Zielonogórski, Zielona Góra, Polska.
16. *Comparing the methods of alternating and simultaneous projections for two subspaces* (26 VI 2023), Nonlinear Analysis and Optimization Seminar, Department of Mathematics, Technion, Hajfa, Izrael.
15. *Finitely convergent projection methods* (14 VII 2019), Nonlinear Analysis and Optimization Seminar, Department of Mathematics, Technion, Hajfa, Izrael.
14. *Regular operators in feasibility* (22 IV 2018), Nonlinear Analysis and Optimization Seminar, Department of Mathematics, Technion, Hajfa, Izrael.
13. *Projection Methods in Feasibility* (05 XII 2017), within the framework of AIANI Academic Network at the Department of Mathematics, Universität Innsbruck, Innsbruck, Austria, **zaproszony referat**.
12. *The optimal error bound for the method of simultaneous projections* (04 XII 2017), at the Functional Analysis Group Seminar, Department of Mathematics, Universität Innsbruck, Innsbruck, Austria, **zaproszony referat**.
11. *Linear convergence rate of extrapolated fixed point algorithms* (12 XI 2017), Nonlinear Analysis and Optimization Seminar, Department of Mathematics, Technion, Hajfa, Izrael.
10. *The optimal error bound for the method of simultaneous projections* (11 IV 2017), Wydział Matematyki, Informatyki i Ekonometrii, Uniwersytet Zielonogórski, Zielona Góra, Polska.
9. *The optimal error bound for the method of simultaneous projections* (02 IV 2017), Nonlinear Analysis and Optimization Seminar, Department of Mathematics, Technion, Hajfa, Izrael.
8. *Linear convergence of perturbed string averaging projection methods* (11 XII 2016), Nonlinear Analysis and Optimization Seminar, Department of Mathematics, Technion, Hajfa, Izrael.
7. *Linear convergence of a double-layer fixed point algorithm* (14 XI 2016), Nonlinear Analysis and Optimization Seminar, Department of Mathematics, Technion, Hajfa, Izrael.
6. *Convergence properties of dynamic string averaging projection methods in the presence of perturbations* (18 IX 2016), Seminarium z optymalizacji i ekonomii matematycznej, Wydział Matematyki, Informatyki i Ekonometrii, Uniwersytet Zielonogórski, Zielona Góra, Polska.
5. *Linear convergence of some fixed point algorithm* (4 V 2016), Seminarium wydziałowe Wydziału Matematyki, Informatyki i Ekonometrii, Uniwersytet Zielonogórski, Zielona Góra, Polska.
4. *Modular string averaging for quasi-nonexpansive operators and its applications to variational inequalities* (28 IV 2015), Applied Mathematics Seminar, Tel Aviv University, Tel Aviv, Izrael.

3. *An algorithmic approach to problems involving feasibility seeking* (26 III 2015), Nonlinear Analysis and Optimization Seminar, Department of Mathematics, Technion, Hajfa, Izrael.
2. *Dynamic string averaging for quasi-nonexpansive operators and its applications to variational inequalities* (09 XI 2014), Nonlinear Analysis and Optimization Seminar, Department of Mathematics, Technion, Hajfa, Izrael.
1. *Some iterative methods for solving variational inequalities defined over fixed point sets* (17 IX 2013), Institut für Mathematik und Informatik, Ernst Moritz Arndt Universität Greifswald, Greifswald, Niemcy, **zaproszony referat**.

1.4 Recenzje dla czasopism naukowych (29)

Advances in Computational Mathematics (1), BIT Numerical Mathematics (1), Computational and Applied Mathematics (1), Inverse Problems (1), Journal of Applied and Numerical Optimization (2), Journal of Inequalities and Applications (1), Journal of Nonlinear and Convex Analysis (1), Journal of Optimization Theory and Applications (2), Mediterranean Journal of Mathematics (1), Numerical Algorithms (6), Optimization (7), Optimization Letters (1), Pure and Applied Functional Analysis (1), Results in Mathematics (1), SIAM Journal on Optimization (2).

1.5 Cytowania w Goolge Scholar

<https://scholar.google.com/citations?hl=pl&user=eM8E5VkAAAAJ>

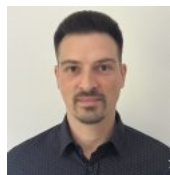
(Wydruk ze strony w załączeniu.)

2 Dorobek dydaktyczny

- Współudział w przygotowaniu pracy licencjackiej studenta: Viktor I. Kolobov. Praca pt. *An Extrapolated Dynamic String Averaging Method* złożona w 2018 na Wydziale Computer Science Department, Technion, Hajfa, Izrael. Promotor pracy: prof. Simeon Reich. Rezultaty opublikowane w artykule [12].
- Dwukrotne prowadzenie warsztatów naukowo badawczych dla studentów w ramach *Summer Projects in Mathematics at the Technion*, 2015 oraz 2016 r., Hajfa, Izrael. Tytuł warsztatów: *Projection methods*.
- Prowadzenie zajęć dydaktycznych z matematyki dla studentów UZ podczas studiów doktoranckich, 2 semestry.

3 Dorobek organizacyjny

- Zorganizowanie dwóch sesji na konferencji *28th European Conference on Operational Research*, Poznań, 03–06 VII 2016. Tytuły sesji: *Projection methods in optimization problems 1* oraz *Projection methods in optimization problems 2*.
- Udział w Komitecie organizacyjnym konferencji pt. *V Kongres Młodych Matematyków Polskich*, która odbyła się na Wydziale Matematyki, Informatyki i Ekonometrii UZ, 18–21 IX 2014 r.



Rafał Zalas

Zielona Góra, Poland
 Projection Methods
 Fixed Point Algorithms

	Wszystkie	Od 2019
Cytowania	455	337
h-indeks	11	10
i10-indeks	12	11
0 artykułów		1 artykuł
niedostępne		dostępne
Objęte finansowaniem		

TYTUŁ	CYTOWANE PRZEZ	ROK
Outer approximation methods for solving variational inequalities in Hilbert space A Gibali, S Reich, R Zalas Optimization 66 (3), 417-437	103	2017
Methods for variational inequality problem over the intersection of fixed point sets of quasi-nonexpansive operators A Cegielski, R Zalas Numerical Functional Analysis and Optimization 34 (3), 255-283	52	2013
A modular string averaging procedure for solving the common fixed point problem for quasi-nonexpansive mappings in Hilbert space S Reich, R Zalas Numerical Algorithms 72, 297-323	44	2016
Iterative methods for solving variational inequalities in Euclidean space A Gibali, S Reich, R Zalas Journal of Fixed Point Theory and Applications 17, 775-811	42	2015
Regular sequences of quasi-nonexpansive operators and their applications A Cegielski, S Reich, R Zalas SIAM Journal on Optimization 28 (2), 1508-1532	34	2018
Sparsity constrained split feasibility for dose-volume constraints in inverse planning of intensity-modulated photon or proton therapy S Penfold, R Zalas, M Casiraghi, M Brooke, Y Censor, R Schulte Physics in Medicine & Biology 62 (9), 3599	33	2017
Convergence properties of dynamic string-averaging projection methods in the presence of perturbations C Bargetz, S Reich, R Zalas Numerical Algorithms 77, 185-209	28	2018
An algorithm for solving the variational inequality problem over the fixed point set of a quasi-nonexpansive operator in Euclidean space A Cegielski, A Gibali, S Reich, R Zalas Numerical Functional Analysis and Optimization 34 (10), 1067-1096	28	2013
Weak, strong and linear convergence of the CQ-method via the regularity of Landweber operators A Cegielski, S Reich, R Zalas Optimization	17	2019
The optimal error bound for the method of simultaneous projections S Reich, R Zalas Journal of Approximation Theory 223, 96-107	13	2017
Weak, strong, and linear convergence of a double-layer fixed point algorithm VI Kolobov, S Reich, R Zalas SIAM Journal on Optimization 27 (3), 1431-1458	11	2017
Finitely convergent deterministic and stochastic iterative methods for solving convex feasibility problems VI Kolobov, S Reich, R Zalas Mathematical Programming, 1-21	10	2022
Outer approximation methods for solving variational inequalities defined over the solution set of a split convex feasibility problem A Cegielski, A Gibali, S Reich, R Zalas Numerical Functional Analysis and Optimization 41 (9), 1089-1108	9	2020

TYTUŁ	CYTOWANE PRZEZ	ROK
Variational inequalities for fixed point problems of quasi-nonexpansive operators R Zalas PhD Thesis, University of Zielona Góra. Zielona Góra, Poland	8	2014
Linear convergence rates for extrapolated fixed point algorithms C Bargetz, VI Kolobov, S Reich, R Zalas Optimization 68 (1), 163-195	6	2019
Polynomial estimates for the method of cyclic projections in Hilbert spaces S Reich, R Zalas Numerical Algorithms 94 (3), 1217-1242	5	2023
Finitely convergent iterative methods with overrelaxations revisited VI Kolobov, S Reich, R Zalas Journal of Fixed Point Theory and Applications 23 (4), 57	5	2021
Error bounds for the method of simultaneous projections with infinitely many subspaces S Reich, R Zalas Journal of Approximation Theory 272, 105648	3	2021
Strong coherence and its applications to iterative methods K Barshad, S Reich, R Zalas JOURNAL OF NONLINEAR AND CONVEX ANALYSIS 20 (8), 1507-1523	3	2019
Comparing the methods of alternating and simultaneous projections for two subspaces S Reich, R Zalas Linear Algebra and its Applications 683, 235-263	1	2024