

# Krzysztof Walkowiak

## Curriculum Vitae

Last update: 30.07.2020



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### Research profiles

Scholar Google: <https://scholar.google.pl/citations?user=cnLc7u4AAAAJ&h>  
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## **A. Background**

### **i. Education**

- 2017: Professorship in Technical Science, President of Poland.
- 2008: D.Sc. (habilitation) in Computer Science, Wrocław University of Technology, (“Unicast and Anycast Flows Assignment in Survivable Connection-Oriented Networks”).
- 2000: Ph.D. in Computer Science, Wrocław University of Technology, (“Optimization of Virtual Paths in Survivable ATM Networks”. Supervisor: Prof. A. Kasprzak).
- 1997: M.Sc. in Computer Science, Wrocław University of Technology, distinguished (“Design of ATM Metropolitan Area Networks”).
- 1992-1997: Studies in computer science at Wrocław University of Technology, Faculty of Electronics (Field of study: Computer Science, Specialization: Computer Networks). Final grade: Very Good, distinguished, 1st Rank in the Faculty of Electronics.

### **ii. Job history**

- 1997-now: Wrocław University of Science and Technology, Faculty of Electronics, Department of Systems and Computer Networks:
- 2017-now: Full Professor
  - 2009-2017: Associate Professor
  - 2001-2009: Assistant Professor
  - 1997-2001: Research Assistant
- 2000-now: IT consulting projects conducted for big Polish companies (e.g., PZU, PKO BP, TP SA, Ernst&Young, BOŚ Bank, BNP, Energa, Skanska)

### **iii. Research Interests**

- ✓ Network optimization
- ✓ Application-aware networking
- ✓ Cognitive optical networks
- ✓ Optical networks (Elastic Optical Networks, Space Division Multiplexing)
- ✓ Network survivability
- ✓ Soft optimization methods
- ✓ Distributed computing systems (cloud computing, data centers, P2P)

## **B. Publications**

Over 280 articles in journals, international and local conference proceedings, including over 60 papers published in JCR (Journal Citation Reports) journals.

### **i. JCR Journal Papers (*selected*)**

1. Aibin M., Walkowiak K., Monte Carlo Tree Search with Last-Good-Reply Policy for Cognitive Optimization of Cloud-Ready Optical Networks, *Journal of Network and Systems Management*, 2020.
2. Walkowiak K., Klinkowski M., Włodarczyk A., Kasprzak A., Predeployment of Transponders for Dynamic Lightpath Provisioning in Translucent Spectrally–Spatially Flexible Optical Networks, *Applied Sciences*, Vol. 10, No. 8, 2020.
3. Kmiecik W., Walkowiak K., A performance study of dynamic routing algorithm for SDM translucent optical networks with assistive storage, *Optical Switching and Networking*, Vol. 38, 2020.
4. Przewoźniczek M., Walkowiak K., Sen A., Lechowicz P., Komarnicki M., Splitting the fitness and penalty factor for temporal diversity increase in practical problem solving, *Expert Systems with Applications*, Vol. 145, 2020.
5. Lechowicz P., Tornatore M., Włodarczyk A., Walkowiak K., Fragmentation Metrics and Fragmentation-Aware Algorithm for Spectrally/Spatially-Flexible Optical Networks, *Journal of Optical Communications and Networking*, Vol. 12, No. 5, pp. 133-145, 2020.
6. Klinkowski M., Ksieniewicz P., Jaworski M., Zalewski G., Walkowiak K., Machine Learning Assisted Optimization of Dynamic Crosstalk-Aware Spectrally-Spatially Flexible Optical Networks, *IEEE Journal of Lightwave Technology*, Vol. 38, No. 7, pp. 1625-1635, 2020.
7. Lechowicz P., Goścień R., Rumipamba-Zambrano R., Perello J., Spadaro S., Walkowiak K., Greenfield Gradual Migration Planning toward Spectrally-Spatially Flexible Optical Networks, *IEEE Communications Magazine*, Vol. 57, No. 10, pp. 14-19, 2019.
8. Klinowski M., Walkowiak K., An Efficient Optimization Framework for Solving RSSA Problems in Spectrally and Spatially Flexible Optical Networks, *IEEE/ACM Transactions on Networking*, Vol. 27, No. 4, pp. 1474-1486, 2019.
9. Przewoźniczek M., Walkowiak K., Sen A., Lechowicz P., Komarnicki M., The transformation of the k-Shortest Steiner trees search problem into binary dynamic problem for effective evolutionary methods application, *Information Sciences*, Vol. 479, pp. 1-19, 2019.
10. Ksieniewicz P., Woźniak M., Cyganek B., Kasprzak A., Walkowiak K., Data stream classification using active learned neural networks, *Neurocomputing*, vol. 353, pp. 74-82, 2019.
11. Lechowicz P., Walkowiak K., Klinkowski M., Greedy randomized adaptive search procedure for joint optimization of unicast and anycast traffic in spectrally-spatially flexible optical networks, *Computer Networks*, Vol. 146, pp. 167-182, 2018.
12. Walkowiak K., Lechowicz P., Klinkowski M., Dynamic Routing in Spectrally-Spatially Flexible Optical Networks with Back-to-Back Regeneration, *IEEE/OSA Journal of Optical Communications and Networking*, Vol. 10, No. 5, pp. 523-534, 2018.
13. Goścień R., Walkowiak K., On the Efficiency of Survivable Flex-grid SDM Networks, *IEEE Journal of Lightwave Technology*, Vol. 36, No. 10, pp. 1815-1823, 2018.
14. Klinkowski M., Lechowicz P., Walkowiak K., Survey of resource allocation schemes and algorithms in spectrally-spatially flexible optical networking, *Optical Switching and Networking*, Vol. 27, No. 1, pp. 58–78, 2018.
15. Goścień R., Walkowiak K., A column generation technique for routing and spectrum allocation in cloud-ready survivable elastic optical networks, *International Journal of Applied Mathematics and Computer Science*, Vol. 27, No. 3, pp. 591-603, 2017.
16. Przewoźniczek M., Walkowiak K., Aibin M., The Evolutionary Cost Of Baldwin Effect in the Routing And Spectrum Allocation Problem in Elastic Optical Networks, *Applied Soft Computing*, vol. 52, pp. 843-862, 2017.
17. Goścień R., Walkowiak K., Modeling and optimization of data center location and routing and spectrum allocation in survivable elastic optical networks, *Optical Switching and Networking*, Vol. 23, Part 2, pp. 129–143, 2017.

18. Aibin M., Walkowiak K., Sen A., Software-Defined Adaptive Survivability for Elastic Optical Networks, ***Optical Switching and Networking***, Vol. 23, Part 2, pp. 85–96, 2017.
19. Klinkowski M., Żotkiewicz M., Walkowiak K., Pióro M., Ruiz M., Velasco L., Solving Large Instances of the RSA Problem in Flexgrid Elastic Optical Networks, ***IEEE/OSA Journal of Optical Communications and Networking***, Vol. 8, No. 5, pp. 320–330, 2016.
20. Klinkowski M., Walkowiak K., On Performance Gains of Flexible Regeneration and Modulation Conversion in Translucent Elastic Optical Networks with Super-channel Transmission, ***IEEE Journal of Lightwave Technology***, Vol. 34, No. 23, 2016.
21. Perelló J., Walkowiak K., Klinkowski M., Spadaro PP., Careglio D., Joint Content Placement and Lightpath Routing and Spectrum Assignment in CDNs over Elastic Optical Network Scenarios, ***Computer Communications***, Vol. 77, pp. 72–84, 2016.
22. Goścień R., Walkowiak K., Tornatore M., Survivable multipath routing of anycast and unicast traffic in elastic optical networks, ***IEEE/OSA Journal of Optical Communications and Networking***, Vol. 8, No. 6, pp. 343–355, 2016.
23. Cyganek B., Graña M., Krawczyk B., Kasprzak A., Porwik P., Walkowiak K., Woźniak M., A Survey of Big Data Issues in Electronic Health Record Analysis, ***Applied Artificial Intelligence***, Vol. 30 , No. 6, pp. 497-520, 2016.
24. Tornatore M., Rottondi C., Goścień R., Walkowiak K., Rizzelli G. and Morea A., On the Complexity of Routing and Spectrum Assignment in Flexible-Grid Ring Networks, ***IEEE/OSA Journal of Optical Communications and Networking***, Vol. 7, Issue 2, pp. A256–A267, 2015.
25. Walkowiak K., Charewicz W., Donajski M., Rak J., Metaheuristic Algorithms for Optimization of Resilient Overlay Computing Systems, ***Logic Journal of IGPL***, Vol. 23, No. 1, pp. 31-44, 2015.
26. Goścień R., Walkowiak K., Klinkowski M., Tabu Search Algorithm for Routing, Modulation and Spectrum Allocation in Elastic Optical Network with Anycast and Unicast Traffic, ***Computer Networks***, Vol. 79, pp. 148-165, 2015.
27. Kmiecik W., Walkowiak K., Flow Assignment (FA) and Capacity and Flow Assignment (CFA) Problems for Survivable Overlay Multicasting in Dual Homing Network, ***Telecommunication Systems***, Vol. 60., No. 4., pp. 553–565, 2015.
28. Rak J., Pickavet M., Trivedi K., Lopez J., Koster A., Sterbenz J., Cetinkaya E., Gomes T., Gunkel M., Walkowiak K., Staessens D., Future Research Directions in Design of Reliable Communication Systems, ***Telecommunication Systems***, Vol. 60., No. 4., pp. 423–450, 2015.
29. Przewoźniczek M., Goścień R., Walkowiak K., Klinkowski M., Towards solving practical problems of large solution space using a novel pattern searching hybrid evolutionary algorithm – An elastic optical network optimization case study, ***Expert Systems with Applications***, Vol. 21, Issue 21, pp. 7781–7796, 2015.
30. Kucharzak M., Walkowiak K., Kopeć, P. Bulira D., Kasprzak A., Integer Programming, Constraint Programming, and Metaheuristic Approaches for Static Optimization of Anycast Flows in Elastic Optical Networks, ***Networks***, Vol. 66, No. 4, pp. 253–266, 2015.
31. Goścień R., Walkowiak K., Klinkowski M., Rak J., Protection in Elastic Optical Networks, ***IEEE Network***, Vol. 29, No. 6, pp. 88-96, 2015.
32. Smutnicki A., Walkowiak K., A Heuristic Approach to Working and Spare Capacity Optimization for Survivable Anycast Streaming Protected by p-Cycles, ***Telecommunication Systems***, Vol. 56, No. 1, pp. 141-156, 2014.
33. Kmiecik W., Goścień R., Walkowiak K., Klinkowski M., Two-layer optimization of survivable overlay multicasting in elastic optical networks, ***Optical Switching and Networking***, 2014, Vol. 14, Part 2, pp. 164–178, 2014.
34. Goścień R., Walkowiak K., Klinkowski M., Distance-adaptive transmission in cloud-ready elastic optical networks, ***IEEE/OSA Journal of Optical Communications and Networking***, Vol. 6, No. 10, pp. 816-828, 2014.
35. Kucharzak M., Walkowiak K., Modeling and Optimization of Maximum Flow Survivable Overlay Multicast with Predefined Routing Trees, ***Telecommunication Systems***, Vol. 56, No. 1, pp. 121-139, 2014.
36. Ellinas E., Papadimitriou D., Rak J., Staessens D., Sterbenz J., Walkowiak K., Practical issues for the implementation of survivability and recovery techniques in optical networks, ***Optical Switching and Networking***, 2014, Vol. 14, Part 2, pp. 179–193, 2014.
37. Walkowiak K., Rak J., Simultaneous Optimization of Unicast and Anycast Flows and Replica Location in Survivable Optical Networks, ***Telecommunication Systems***, Vol. 52, No. 2, pp. 1043-1055, 2013.

38. Klinkowski M., Walkowiak K., On Advantages of Elastic Optical Networks for Provisioning of Cloud Computing Traffic, *IEEE Network*, Vol. 27, No. 6, pp. 44-51, 2013.
39. Chmaj G., Walkowiak K., A P2P computing system for overlay networks, *Future Generation Computer Systems*, Vol. 29, No. 1, pp. 242-249, 2013.
40. Walkowiak K., Przewoźniczek M., Pająk K., Heuristic Algorithms for Survivable P2P Multicasting, *Applied Artificial Intelligence*, Vol. 27, No. 4, pp.278–303, 2013.
41. Kmiecik W., Walkowiak K., Metaheuristic Algorithms for Optimization of Survivable Multicast Overlay in Dual Homing Networks, *Cybernetics and Systems*, Vol. 44, No. 6-7, pp. 606-626, 2013.
42. Rak J., Walkowiak K., Reliable Anycast and Unicast Routing: Protection against Attacks, *Telecommunication Systems*, Vol. 52, No. 2, pp. 889-906, 2013.
43. Kacprzak T., Walkowiak K., Woźniak M., Optimization of Overlay Distributed Computing Systems for Multiple Classifier System – Heuristic Approach, *Logic Journal of IGPL*, Vol. 20, No. 4, pp. 677-688, 2012.
44. Chmaj G., Walkowiak K., Tarnawski M., Kucharzak M., Heuristic Algorithms for Optimization of Task Allocation and Result Distribution in Peer-to-Peer Computing Systems, *International Journal of Applied Mathematics and Computer Science*, Vol. 22, No. 3, 733–748, 2012.
45. Chmaj G., Walkowiak K., Decision Strategies for a P2P Computing System, *Journal of Universal Computer Science*, Vol. 18, No. 5, pp. 599-622, 2012.
46. Przewoźniczek M., Walkowiak K., Woźniak M., Optimizing distributed computing systems for k-nearest neighbors classifiers - evolutionary approach, *Logic Journal of IGPL*, Vol. 19, No. 2., pp. 357-372, 2011.
47. Walkowiak K., Przewoźniczek M., Modeling and optimization of survivable P2P multicasting, *Computer Communications*, Vol. 34, No. 12, pp. 1410-1424, 2011.
48. Klinkowski M., Walkowiak K., Routing and Spectrum Assignment in Spectrum Sliced Elastic Optical Path Network, *IEEE Communications Letters*, Vol. 15., No. 8, pp. 884–886, 2011.
49. Gładysz J., Walkowiak K., Design of MPLS over DWDM Architecture for Unicast and Anycast, *Lecture Notes in Computer Science*, Vol. 6294, Springer Verlag, pp. 172-183, 2010.
50. Walkowiak K., Anycasting in connection-oriented computer networks: models, algorithms and results, *International Journal of Applied Mathematics and Computer Science*, Vol. 20, No. 2, pp. 207-220, 2010.
51. Walkowiak K., Lagrangean Heuristic for Primary Routes Assignment in Survivable Connection-Oriented Networks, *Computational Optimization and Applications*, Vol. 40, No. 2, pp. 119-141, 2008.
52. Walkowiak K., A Unified Approach to Survivability of Connection-Oriented Networks, *Lecture Notes in Computer Science*, Vol. 3733, Springer Verlag, pp. 3-12, 2005.
53. Walkowiak K., QoS Dynamic Routing in Content Delivery Networks, *Lecture Notes in Computer Science*, Vol. 3462, Springer Verlag, pp. 1120-1132, 2005.
54. Przewoźniczek M., Walkowiak K., Evolutionary Algorithm for Congestion Problem in Connection-Oriented Networks, *Lecture Notes in Computer Science*, Vol. 3483, Springer Verlag, pp. 802-811, 2005.
55. Walkowiak K., Heuristic Algorithm for Anycast Flow Assignment in Connection-Oriented Networks, *Lecture Notes in Computer Science*, Vol. 3516, Springer Verlag, pp. 1092-1095, 2005.
56. Walkowiak K., A Branch and Bound Algorithm for Primary Routes Assignment in Survivable Connection Oriented Networks, *Computational Optimization and Applications*, Vol. 27, No. 1, pp. 149-171, 2004.
57. Walkowiak K., On Application of Ant Algorithms to Non-Bifurcated Multicommodity Flow Problem, *Lecture Notes in Computer Science*, Vol. 3070, Springer Verlag, pp. 922-927, 2004.
58. Walkowiak K., Survivable Online Routing for MPLS Traffic Engineering, *Lecture Notes in Computer Science*, Vol. 3266, Springer Verlag, pp. 288-297, 2004.
59. Walkowiak K., A New Method of Primary Routes Selection for Local Restoration, *Lecture Notes in Computer Science*, Vol. 3042, Springer Verlag, pp. 1024-1035, 2004.
60. Walkowiak K., A New Approach to Survivability of Connection Oriented Networks, *Lecture Notes in Computer Science*, Vol. 2657, Springer Verlag, pp. 501-510, 2003.

## ii. Other Journals Papers and Chapters (selected)

1. Goścień R., Ellinas G., Furdek M., Kolios P., Lechowicz P., Manousakis K., Savva G., Skorin-Kapov N., Walkowiak K., Security-Aware Carrier Network Planning, pp. 193-217, in: *Guide to Disaster-Resilient Communication Networks*, Springer, 2020.

2. Walkowiak K., Woźniak M., Klinkowski M., Kmiecik W., Optical Networks for Cost-Efficient and Scalable Provisioning of Big Data Traffic, *International Journal of Parallel, Emergent and Distributed Systems*, Vol. 30, No. 1, pp. 15-28, 2015.
3. Walkowiak K., Kasprzak A., Andrusieczko K., Optimization of Overlay Computing Systems with Many-to-Many Transmissions, *Theoretical and Applied Informatics*, Vol. 24, No. 4, pp. 271-291, 2013.
4. Walkowiak K., A Lagrangean Relaxation Algorithm for Flow Optimization in Survivable MPLS Networks, *Theoretical and Applied Informatics*, Vol. 22, No. 1, pp. 19-47, 2010.
5. Walkowiak K., Maximizing residual capacity in connection-oriented networks, *Journal of Applied Mathematics and Decision Sciences*, Hindawi Publishing Corporation, 2006.
6. Przewoźniczek M., Walkowiak K., Quasi-hierarchical Evolution Algorithm for Flow Assignment in Survivable Connection-Oriented Networks, *International Journal of Applied Mathematics and Computer Science*, Vol. 16, No. 4, pp. 101-116., 2006.
7. Walkowiak K., Ant algorithm for flow assignment in connection-oriented networks, *International Journal of Applied Mathematics and Computer Science*, Vol. 15, No. 2, pp. 205-220, 2005.
8. Walkowiak K., Ant Algorithms for Solution of Graph Related optimization Problems, *Journal of Applied Computer Science*, Vol. 11, No. 2, pp. 83-97, 2003.
9. Walkowiak K., The Branch and Bound Algorithm for Backup Virtual Path Assignment in Survivable ATM Networks, *International Journal of Applied Mathematics and Computer Science*, Vol. 12, No. 2, pp. 257-268, 2002.

### iii. Books (selected)

1. Walkowiak K., Modeling and Optimization of Cloud-Ready and Content-Oriented Networks, *Studies in Systems, Decision and Control*, Vol. 56, **Springer Verlag**, 2016.
2. Walkowiak K., Modeling and optimization of computer networks, Textbook, Łódź, PRINTPAP, 2011.

### iv. International Conference Proceedings Refereed Papers (selected)

1. Ksieniewicz P., Goścień R., Klinkowski M., Walkowiak K., Pattern recognition model to aid the optimization of dynamic spectrally-spatially flexible optical networks, 20th International Conference on Computational Science ICCS 2020, (Amsterdam, Netherlands, June 3-5, 2020), 2020.
2. Lechowicz P., Perello J., Spadaro S., Walkowiak K., Brown-field Gradual Migration Planning Toward Spectrally-Spatially Flexible Optical Networks, Proceedings of the 24th International Conference on Optical Network Design and Modeling ONDM 2020, (Barcelona, Spain, May 18-21, 2020), 2020.
3. Sen A., Zhou C., Mazumder A., Das A., Basu K., Walkowiak K., On the Number of Steiner Trees in a Graph, Proceedings of the 16th International Conference on the Design of Reliable Communication Networks DRCN 2020, (Milano, Italy, March 24-27, 2020), 2020.
4. Szostak D., Walkowiak K., Influence of Traffic Type on Traffic Prediction Quality in Dynamic Optical Networks with Service Chains, Proceedings of the Polskie Porozumienie na Rzecz Rozwoju Sztucznej Inteligencji PP-RAI 2019 (Wrocław, Poland, October 16-18, 2019), 2019.
5. Ksieniewicz P., Klinkowski M., Walkowiak K., Employing supervised learning algorithms in the task of dynamic spectrally-spatially flexible optical networks optimization, Proceedings of the Polskie Porozumienie na Rzecz Rozwoju Sztucznej Inteligencji PP-RAI 2019 (Wrocław, Poland, October 16-18, 2019), 2019.
6. Barbosa F., de Sousa A., Agra A., Walkowiak K., Goścień, A RMSA Algorithm Resilient to Multiple Node Failures on Elastic Optical Networks, Proceedings of the 11th International Workshop on Reliable Networks Design and Modeling RNDM 2019 (Nicosia, Cyprus, October 14-16, 2019), 2019.
7. Walkowiak K., Goścień R., Lechowicz P., Włodarczyk A., Klinkowski M., Data Analytics for Re-dimensioning of SDM Links in Spectrally-Spatially Flexible Optical Networks, Proceedings of the OSA Advanced Photonics Congress (AP), (Burlingame, US, July29-August 1, 2019), 2019.
8. Walkowiak K., Włodarczyk A., Klinkowski M., Effective Worst-Case Crosstalk Estimation for Dynamic Translucent SDM Elastic Optical Networks, Proceedings of the IEEE International Conference on Communications ICC 2019, (Shanghai, China, May 20-24, 2019), 2019.

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10. Walkowiak K., Goścień R., Lechowicz P., Włodarczyk A., Klinkowski M., Data Analytics for Improving Performance of Spectrally-Spatially Flexible Optical Networks, *Proceedings of the 21th International Conference on Transparent Optical Networks ICTON 2019*, (Angers, France, July 9-13, 2019), 2019.
11. Lechowicz P., Tornatore M., Włodarczyk A., Walkowiak K., Fragmentation Metrics in Spectrally-Spatially Flexible Optical Networks, *Proceedings of the 23th International Conference on Optical Network Design and Modeling ONDM 2019*, (Athens, Greece, May 13-16, 2019), 2019.
12. Walkowiak K., Włodarczyk A., Klinkowski M., Effective Worst-Case Crosstalk Estimation for Dynamic Translucent SDM Elastic Optical Networks, *Proceedings of the IEEE International Conference on Communications ICC 2019*, (Shanghai, China, May 20-24, 2019), 2019.
13. Lechowicz P., Rumipamba-Zambrano R., Perelló J., Spadaro S., Walkowiak K., Inter-Core Crosstalk Impact on Migration Planning from Elastic Optical Networks to Spectrally-Spatially Flexible Optical Networks, *Proceedings of the Optical Fiber Communication Conference and Exposition OFC 2019*, (San Diego, US, March 3-7, 2019), 2019.
14. Walkowiak K., Lechowicz P., Klinkowski M., Transceiver Sharing in Survivable Spectrally-Spatially Flexible Optical Networks, *Proceedings of the IEEE Global Communications Conference Globecom 2018* (Abu Dhabi, UAE, December 9-13, 2018), 2018.
15. Lechowicz P., Rumipamba-Zambrano R., Perelló J., Spadaro S., Walkowiak K., Migration Planning from Elastic Optical Networks to Spectrally-Spatially Flexible Optical Networks, *Proceedings of the International Conference on Photonics in Switching and Computing PSC 2018*, (Limassol, Cyprus, September 19-21, 2018), 2018.
16. Walkowiak K., Lechowicz P., Klinkowski M., Survivable Routing in Spectrally-Spatially Flexible Optical Networks with Back-to-Back Regeneration, *Proceedings of the 10th International Workshop on Reliable Networks Design and Modeling RNDM 2018*, (Longyearbyen, Svalbard, Norway, August 27-29, 2018), 2018.
17. Aibin M., Walkowiak K., Monte Carlo Tree Search for Cross-Stratum Optimization of Survivable Inter-Data Center Elastic Optical Network, *Proceedings of the 10th International Workshop on Reliable Networks Design and Modeling RNDM 2018*, (Longyearbyen, Svalbard, Norway, August 27-29, 2018), 2018.
18. Walkowiak K., Klinkowski M., Lechowicz P., Scalability Analysis of Spectrally-Spatially Flexible Optical Networks with Back-to-Back Regeneration, *Proceedings of the 20th International Conference on Transparent Optical Networks ICTON 2018*, (Bucharest, Romania, July 1-5, 2018), 2018, paper Mo.B3.4.
19. Walkowiak K., Lechowicz P., Klinkowski M., Impact of Inter-Core Crosstalk on Performance of Spectrally-Spatially Flexible Optical Networks with B2B Regeneration, *Proceedings of the 20th International Conference on Transparent Optical Networks ICTON 2018*, (Bucharest, Romania, July 1-5, 2018), 2018, paper We.D1.4.
20. Klinkowski M., Walkowiak K., Impact of Crosstalk Estimation Methods on the Performance of Spectrally and Spatially Flexible Optical Networks, *Proceedings of the 20th International Conference on Transparent Optical Networks ICTON 2018*, (Bucharest, Romania, July 1-5, 2018), 2018, paper Mo.B3.3.
21. Klinkowski M., Zalewski G., Walkowiak K., Optimization of Spectrally and Spatially Flexible Optical Networks with Spatial Mode Conversion, *Proceedings of the 22th International Conference on Optical Network Design and Modeling ONDM 2018*, (Dublin, Ireland, May 14-17, 2018), 2018.
22. Walkowiak K., Klinkowski M., Predeployment of Transceivers for Dynamic Lightpath Provisioning in Translucent Flexgrid Optical Networks, *Proceedings of the Optical Fiber Communication Conference and Exposition OFC*, (San Diego, US, March 11-25, 2018), 2018.
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24. Klinkowski M., Lechowicz P., Walkowiak K., A Study on the Impact of Inter-Core Crosstalk on SDM Network Performance, *Proceedings of the 2018 International Conference on Computing, Networking and Communications ICNC*, (Maui, HI, USA, March 5-8, 2018), 2018.
25. Walkowiak K., Klinkowski M., Energy Efficiency of Dynamic Routing in Elastic Optical Networks with Back-to-Back Regeneration, *Proceedings of the 2018 International Conference on Computing, Networking and Communications ICNC*, (Maui, HI, USA, March 5-8, 2018), 2018.



26. Walkowiak K., Klinkowski M., Performance Analysis of Dynamic Routing in Elastic Optical Networks with Back-to-Back Regeneration, *Proceedings of the 43th European Conference on Optical Communications ECOC*, (Gothenburg, Sweden, September 17-21, 2017), 2017.
27. Lechowicz P., Walkowiak K., Klinkowski M., Spectrum Usage for Various SDM Scenarios, *Proceedings of the 19th International Conference on Transparent Optical Networks ICTON*, (Girona, Spain, July 2-6, 2017), 2017.
28. Walkowiak K., Klinkowski M., Lechowicz P., Influence of Modulation Format Transmission Reach on Performance of Elastic Optical Networks, *Proceedings of the 19th International Conference on Transparent Optical Networks ICTON*, (Girona, Spain, July 2-6, 2017), 2017.
29. Aibin M., Walkowiak K., Analysis of inter-data center elastic optical network, *Proceedings of the 19th International Conference on Transparent Optical Networks ICTON*, (Girona, Spain, July 2-6, 2017), 2017.
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32. Aibin M., Walkowiak K., Defragmentation Algorithm for Joint Dynamic and Static Routing Problems in Elastic Optical Networks with Unicast and Anycast Traffic, *Proceedings of the 2016 International Conference on Computing, Networking and Communications ICNC*, (Kauai, HI, USA, February, 15-18, 2016), pp. 1-5, 2016.
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## C. Invited talks

- ✓ **Invited talk** at Post-OFC Workshop, **UC Davis, CA, USA**, on the topic of "Optimization of Spectrally-Spatially Flexible Optical Networks with Back-to-Back Regeneration", 2019.
- ✓ **Tutorial** on the topic of "Spectrally-spatially flexible optical networks: technology and optimization", 9th International Conference on Networks of the Future **NoF 2018** in Poznan, Poland, 2018.
- ✓ **Invited lecture** in **Soochow University, Suzhou, China**, "How to solve the Internet capacity crunch – new challenges in optical networks", 2016.
- ✓ **Invited lecture** in School of Engineering Science at **Simon Fraser University (SFU), Vancouver, British Columbia, Canada**, „How to cope with the capacity crunch – new challenges in optical networks", 2016.
- ✓ **Invited lecture** in School of Computing, Informatics and Decision Systems Engineering, **Arizona State University (ASU), Tempe, Arizona, USA** „Various Approaches for Optimization of Elastic Optical Networks", 2016.
- ✓ **Tutorial** on the topic of "Optimization Strategies and Modelling of Networks" at the Summer School for Master and PhD Students on NFV meets Big Data, April 8th - April 15th 2015 in **University of Wuerzburg, Germany**.
- ✓ **Panel discussion** "SDN – Revolution or Evolution in Network Reliability?", 6th International Workshop on Reliable Networks Design and Modeling **RNDM 2014, Barcelona, Spain**, 2014.
- ✓ **Invited talk** at Chair of Communication Networks, Institute of Computer Science, **University of Wuerzburg, Germany**, on the topic of "Design and Evaluation of Elastic Optical Networks for Inter-Data Center Traffic", 2014.
- ✓ **Invited talk** at Post-OFC Workshop, **UC Davis, CA, USA**, on the topic of "Metaheuristic Algorithms for Optimization of Elastic Optical Networks", 2014.
- ✓ **Visiting professor and invited talk** at Department of Electronics and Information, **Politecnico di Milano, Milan, Italy**, on the topic of "Optimization of Cloud-Ready and Content-Oriented Elastic Optical Networks", 2014.
- ✓ **Panel discussion** "How practical are recent network reliability concepts?", 5th International Workshop on Reliable Networks Design and Modeling, **RNDM 2013, Almaty, Kazakhstan**, 2013.
- ✓ **Keynote lecture** at **IBICA 2013** – The 4th International Conference on Innovations in Bio-Inspired Computing and Applications, Ostrava, Czech Republic, „ Recent Trends in Communication Networks", 2013.
- ✓ **Invited talk** at Department of Computer Architecture, **Universitat Politècnica de Catalunya (UPC), Barcelona, Spain**, on the topic of "Optimization of Elastic Optical Networks for Content-Oriented Networks and Cloud Computing", 2013.
- ✓ **Tutorial** on the topic of "Metaheuristic Algorithms for Optimization of Content-Oriented and Cloud Computing Networks" at the Second International Cybernetics Summer School (CSS 2013), **Technical University of Ostrava, Ostrava, Czech Republic**, 2013.
- ✓ **Tutorial** „Flow and Capacity Design in Content-Oriented Networks" at conference **Networks 2012, Rome, Italy** 2012.
- ✓ **Keynote lecture** "Survivable Content-Oriented Networks – Modeling and Optimization" at conference 4th International Workshop on Reliable Networks Design and Modeling **RNDM 2012, St Petersburg, Russia**, 2012.
- ✓ **Keynote lecture** "Modeling of Content-Oriented Networks" at conference 17th Polish Teletraffic Symposium **PTS 2012, Zakopane, Poland**, 2012.
- ✓ **Panel discussion** "Future Research in Reliable Networks", 4th International Workshop on Reliable Networks Design and Modeling, **RNDM 2012, Petersburg, Russia**, 2012.
- ✓ **Keynote lecture** "Content Delivery Networking: Modeling, Optimization and Survivability" at conference **ICUMT 2011, Budapest, Hungary**, 2011.

- ✓ **Invited talk** at the **RWTH Aachen University, Germany** on the topic of “Modeling and optimization of survivable P2P multicasting”, 2010.
- ✓ **Panel discussion** “Future Research in Reliable Networks”, 2nd International Workshop on Reliable Networks Design and Modeling, **RNDM 2010, Moscow, Russia**, 2010.
- ✓ **Panel discussion** „Internet of Tomorrow: Is It For Everybody!?”, The Second International Conference on Evolving Internet, **INTERNET 2010, Valencia, Spain**, 2010.
- ✓ **Invited talk** at The **Vienna University of Technology (TU Vienna), Austria** in FTW Telekom Forum series, “Modeling and Optimization of Network Flows in P2P-based Systems”, 2009.
- ✓ **Invited talk** at School of Computing Science, **University of Newcastle upon Tyne, UK** in colloquia series on the topic of "New Challenges in Network Optimization - P2P-based Systems", 2009.



## **D. Participation in Funded Grants**

- ✓ 2020-2024: “Advanced methods for optimization of multilayer application-aware networks”, financed by National Science Centre Poland, OPUS grant, **leader and principal investigator**.
- ✓ 2018-2021: “Optimization of cognitive optical networks”, financed by National Science Centre Poland, OPUS grant, **leader and principal investigator**.
- ✓ 2016-2019: “Advanced methods for optimization of optical networks with spatial flexibility” financed by National Science Centre Poland, OPUS grant, **leader and principal investigator**.
- ✓ 2016-2020: COST Action CA15127 “RECODIS - Resilient communication services protecting end-user applications from disaster-based failures”, financed by European Union under Horizon 2020, **Short Term Scientific Mission (STSM) Manager and Management Committee Member**.
- ✓ 2014-2017: “Compound data stream classification methods based on unsupervised and active learning,” financed by National Science Centre Poland, OPUS grant, **member of project team**.
- ✓ 2013-2016: “Algorithms for optimization of routing and spectrum allocation in content oriented elastic optical networks”, financed by National Science Centre Poland, OPUS grant, **leader and principal investigator**.
- ✓ 2013-2016: “ENGINE – European research centre of Network intelligence for INnovation Enhancement”, funded by the European Commission under the 7th Framework Programme, Coordination and Support Action, **leader of Work Package 3**.
- ✓ 2008-2011: “Algorithms for Optimization of Flows and Channel Capacity in Network Distributed Systems”, financed by Polish Ministry of Science and Higher Education, **leader and principal investigator**.
- ✓ 2010-2013: “Computer pattern recognition and data mining methods for distributed computing systems”, financed by Polish Ministry of Science and Higher Education, **member of project team**.
- ✓ 2011-2014: “Methods for design of complex computer structures for decision making systems”, financed by Polish Ministry of Science and Higher Education, **member of project team**.
- ✓ 2007-2013: “WROVASC – Integrated Center of Cardiovascular Medicine”, financed by European Regional Development Fund and the Polish Government, Operational Programme - Innovative Economy, **member of project team**.
- ✓ 2006-2009: “Computer methods of information fusion for pattern recognition and data mining tasks”, financed by Polish Ministry of Science and Higher Education, **member of project team**.
- ✓ 2005-2008: “Algorithms for Optimization of Flows, Topology and Resource Allocation in Wide Area Networks”, financed by Polish State Committee for Scientific Research and Development grant, **member of project team**.

## **E. Professional and Scientific Service**

### **i. Memberships**

- ✓ IEEE Communication Society – ComSoc, (since 2008 r.), Senior Member (since 2015)
- ✓ Machine Intelligence Research Labs (since 2009)

### **ii. Conference Charing**

- ✓ Track Chair of the Third European Network Intelligence Conference ENIC, Track on Intelligent Methods for Optimization of Communication Networks, 2016.
- ✓ Chair of the Second Workshop on Survivable Content-Oriented and Cloud-Ready Networking S2CN, 2015.
- ✓ Program Co-chair of the 16th International Conference on Intelligent Data Engineering and Automated Learning IDEAL, 2015.
- ✓ Track Chair of the Second European Network Intelligence Conference ENIC, Track on Intelligent Methods for Optimization of Communication Networks, 2015.
- ✓ Chair of special session Computational Intelligence for Optimization of Communication Networks of conference 16th International Conference on Intelligent Data Engineering and Automated Learning IDEAL, 2015.
- ✓ Chair of the First Workshop on Survivable Content-Oriented and Cloud-Ready Networking S2CN, 2014.
- ✓ Chair of the special session Intelligent Network Security and Survivability, conference 5th International Conference on Computational Intelligence in Security for Information Systems CISIS 2012.
- ✓ TPC Co-chair of the 2nd International Workshop on Reliable Networks Design and Modeling RNDM 2010.
- ✓ TPC Co-chair of the First International Workshop on Grid Computing GridCom, 2009.

### **iii. Program Committee Member (*selected*)**

- ✓ IEEE International Conference on Communications (ICC): 2011, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020.
- ✓ IEEE Globecom 2017, 2018, 2019, 2020.
- ✓ International Telecommunications Network Strategy and Planning Symposium (Networks): 2010, 2012, 2014, 2016, 2018.
- ✓ International Conference on Design of Reliable Communication Networks (DRCN): 2009, 2011, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020.
- ✓ International Workshop on Reliable Networks Design and Modeling (RNDM): 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019.
- ✓ International Conference on Computational Science (ICCS): 2010, 2011, 2012, 2013, 2014, 2015, 2016.
- ✓ International Conference on Computational Science and Its Applications (ICCSA): 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019.

### **iv. Session Chairing**

- ✓ Globecom 2018, IEEE Global Communications Conference, Abu Dhabi, UAE, 2018.

- ✓ RNDM 2018, 10th International Workshop on Reliable Networks Design and Modeling, Longyearbyen, Svalbard, Norway, 2018.
- ✓ ICTON 2018, 20th International Conference on Transparent Optical Networks, Bucharest, Romania, 2018.
- ✓ ENIC 2016, The Third European Network Intelligence Conference, Wroclaw, Poland, 2016.
- ✓ RNDM 2016, 8th International Workshop on Reliable Networks Design and Modeling, Halmstad, Sweden, 2016.
- ✓ IDEAL 2015, The 16th International Conference on Intelligent Data Engineering and Automated Learning Wroclaw, Poland, 2015.
- ✓ ENIC 2015, The Second European Network Intelligence Conference, Karlskrona, Sweden, 2015.
- ✓ RNDM 2015, 7th International Workshop on Reliable Networks Design and Modeling, Munich, Germany, 2015.
- ✓ ICC 2015, Next-Generation Networking Symposium, London, UK, 2015.
- ✓ ICC 2014, Next-Generation Networking Symposium, Sydney, Australia, 2014.
- ✓ RNDM 2014, 6th International Workshop on Reliable Networks Design and Modeling, Barcelona, Spain, 2014.
- ✓ DRCN 2014, The 7th International Workshop on the Design of Reliable Communication Networks, Ghent, Belgium.
- ✓ ICC 2013, Next-Generation Networking Symposium, Budapest, Hungary, 2013.
- ✓ RNDM 2013, 5th International Workshop on Reliable Networks Design and Modeling, Almaty, Kazakhstan, 2013.
- ✓ CISIS 2012, 5th International Conference on Computational Intelligence in Security for Information Systems, Ostrava, Czech Republic, 2012.
- ✓ RNDM 2011, 3rd International Workshop on Reliable Networks Design and Modeling, Budapest, Hungary, 2011.
- ✓ ICC 2011, 2011 IEEE International Conference on Communications, Communications QoS, Reliability and Modeling Symposium CQRM, Kyoto, Japan, 2011.
- ✓ INTERNET 2010, The Second International Conference on Evolving Internet, Valencia, Spain, 2010.
- ✓ RNDM 2010, 2nd International Workshop on Reliable Networks Design and Modeling, Moscow, Russia, 2010.
- ✓ ICDCIT 2008, 5th International Conference on Distributed Computing and Internet Technologies, New Delhi, India, 2008.
- ✓ NTMS 2008, 2nd International Conference on New Technologies, Mobility and Security, Tangier, Morocco, 2008.
- ✓ ISCIS 2006, 21st International Symposium on Computer and Information Sciences, Istanbul, Turkey, 2006.
- ✓ ICCS 2005, International Conference on Computational Science, Atlanta, USA, 2005.
- ✓ IMACS 2005, 17th IMACS World Congress, Paris, France, 2005.
- ✓ ISCIS 2005, 20th International Symposium on Computer and Information Sciences, Istanbul, Turkey, 2005.

## v. Editorships

- ✓ **Associate Editor.** Journal of Network and Systems Management, Springer (2015-present).
- ✓ **Editorial board.** International Journal On Advances in Internet Technology (2014-present).
- ✓ **Editorial board.** International Journal On Advances in Telecommunications (2014-present).
- ✓ **Co-Editor** of Proceedings of the 7th International Conference Intelligent Data Engineering and Automated Learning (IDEAL 2015). Wroclaw, October 14–16, 2015. Lecture Notes in Computer Science vol. 9375, 2015.

- ✓ **Co-Editor** of Proceedings of the 7th International Workshop on Reliable Networks Design and Modeling (RNDM 2015), Munich, Germany. 2015.
- ✓ **Co-Editor** of Proceedings of the 6th International Workshop on Reliable Networks Design and Modeling (RNDM 2014), Barcelona, Spain, 2014.
- ✓ **Guest Editor** of the special issues “Reliable networks design and modeling” in Telecommunication Systems, Vol. 52, 2013.
- ✓ **Guest Editor** of the special issues “INTELLIGENT NETWORK SECURITY AND SURVIVABILITY” in Cybernetics and Systems, Vol. 44, No. 6-7, 2013.
- ✓ **Guest Editor** of the special issues in GRID COMPUTING in International Journal on Communication Networks and Distributed Systems, Vol. 5, No. 3, 2010.
- ✓ **Co-Editor** of Proceedings of the 2nd International Workshop on Reliable Networks Design and Modeling (RNDM 2010), Moscow, Russia. 2010.

## vi. Journal Reviews

- ✓ IEEE Communications Magazine
- ✓ IEEE/ACM Transactions on Networking
- ✓ IEEE/OSA Journal of Lightwave Technology
- ✓ IEEE Communications Letters
- ✓ IEEE/OSA Journal of Optical Communications and Networking
- ✓ IEEE Journal on Selected Areas in Communications
- ✓ Telecommunication Systems
- ✓ Photonic Network Communications
- ✓ Computer Communications
- ✓ Optical Switching and Networking
- ✓ Future Generation Computer Systems
- ✓ Information Sciences
- ✓ Annals of telecommunications - annales des telecommunications
- ✓ Optimization Letters
- ✓ IEEE Transactions on Industrial Informatics
- ✓ Journal of Network and Systems Management
- ✓ Journal of High Speed Networks
- ✓ International Journal of Applied Mathematics and Computer Science
- ✓ European Journal of Operational Research
- ✓ Journal of Circuits, Systems and Computers
- ✓ Computational Optimization and Applications
- ✓ Pattern Analysis and Applications Journal
- ✓ International Journal of Computer Mathematics
- ✓ Expert Systems
- ✓ Journal On Advances in Systems and Measurements
- ✓ International Journal of Communication Networks and Distributed Systems
- ✓ Journal of Network Protocols and Algorithms

## vii. Grant Reviews

- ✓ Wallenberg Academy Fellows Programs, Chalmers University, Sweden.
- ✓ Research Foundation - Flanders FWO, Belgium.
- ✓ Latvian Science Council, Latvia.
- ✓ Swiss National Science Foundation (SNSF), Switzerland.
- ✓ National Fund for Scientific and Technological Development, FONDECYT, Chile.
- ✓ Quantum Science and Technology (Q@TN), Trento, Italy.

- ✓ National Science Centre (NCN), Poland.
- ✓ Polish National Centre for Research and Development (NCBiR), Poland.
- ✓ Polish Innovative Economy National Cohesion Strategy funded by EC, Poland.
- ✓ Polish Ministry of Science and Higher Education, Poland.

### viii. Dissertation Supervision

- ✓ I supervised **9 finished PhD**:
  - Algorithms for Flow Assignment and Resource Allocation in Spectrally-Spatially Flexible Optical Networks (P. Lechowicz, 2019).
  - Dynamic algorithms for optimization of elastic optical networks (M. Aibin, 2017).
  - Optimization algorithms for survivable elastic optical networks (R. Goścień, 2016).
  - Modeling and optimization of flows in P2P systems (M. Kucharzak, 2016).
  - Joint optimization of flow and capacity in survivable multicast systems (W. Kmieciak, 2015).
  - Joint optimization of flow and capacity in overlay multicast systems (M. Szostak, 2014).
  - Scheduling problems with the aging effect and maintenance cost – algorithms and complexity (A. Rudek, 2014).
  - Optimization of survivable networks based on p-Cycles (A. Smutnicki, 2012).
  - Modeling and optimization of P2P computing systems (G. Chmaj, 2010).
- ✓ Currently, I am a supervisor of **2 PhD thesis in progress**:
  - Optimization of optical networks with time varying traffic (A. Włodarczyk).
  - Machine learning for traffic prediction in optical networks (D. Szostak).

### ix. Reviews of PhD Thesis, Habilitations, and Professors Applications

- ✓ Review of Ph.D. thesis: Atyaf Al-Tameemi, Poznań University of Technology, Poland, 2020.
- ✓ Review of Ph.D. thesis: Sebastian Łaskawiec, UTP University of Science and Technology, Poland, 2020.
- ✓ Review of habilitation and member of Habilitation Committee: Michał Karpowicz, Warsaw University of Technology, Poland, 2020.
- ✓ Review of habilitation and member of Habilitation Committee: Robert Wójcik, University of Mining and Metallurgy in Krakow, Poland, 2019.
- ✓ Review of habilitation and member of Habilitation Committee: Piotr Pacyna, University of Mining and Metallurgy in Krakow, Poland, 2019.
- ✓ Review of professor application: Jozef Pieprzyk, Institute of Computer Science, Polish Academy of Sciences, Poland, 2019.
- ✓ Review of Ph.D. thesis: Mustafa Abdulsahib, Poznań University of Technology, Poland, 2019.
- ✓ Review of habilitation and member of Habilitation Committee: Mariusz Żal, Poznań University of Technology, Poland, 2019.
- ✓ Review of habilitation and member of Habilitation Committee: Rafał Kozik, West Pomeranian University of Technology, Szczecin, Poland, 2019.
- ✓ Review of professor application: Mariusz Głąbowski, Poznań University of Technology, Poland, 2019.
- ✓ Review of Ph.D. thesis: Federico Pederzoli, University of Trento, Italy, 2018.
- ✓ Review of Ph.D. thesis: Krzysztof Stachowiak, Poznań University of Technology, Poland, 2018.
- ✓ Member of Ph.D. Dissertation Committee: Chenyang Zhou, Arizona State University (ASU), Tempe, Arizona, USA, 2018.
- ✓ Review of Ph.D. thesis: Pedro López García, University of Deusto, Donostia / San Sebastián, Spain, 2017.
- ✓ Review of Ph.D. thesis: Tomasz Bartczak, Poznań University of Technology, Poland, 2017.

- ✓ Review of habilitation and member of Habilitation Committee: Jordi Mongay Batalla, Warsaw University of Technology, Poland, 2017.
- ✓ Review of habilitation and member of Habilitation Committee: Artur Janicki, Warsaw University of Technology, Poland, 2017.
- ✓ Review of habilitation and member of Habilitation Committee: Andrzej Bęben, Warsaw University of Technology, Poland, 2016.
- ✓ Review of Ph.D. thesis: Michał Stasiak, Poznań University of Technology, Poland, 2016.
- ✓ Review of Ph.D. thesis: Piotr Boryło, University of Mining and Metallurgy in Krakow, Poland, 2016.
- ✓ Review of Ph.D. thesis and Ph.D. Dissertation Committee member: Anna Buttaboni, Politecnico di Milano, Italy, 2015.
- ✓ Review of habilitation and member of Habilitation Committee: Piotra Chołda, University of Mining and Metallurgy in Krakow, Poland, 2015.
- ✓ Member of Ph.D. Dissertation Committee: Mohammed Alenazi, The University of Kansas, USA, 2015.
- ✓ Member of Habilitation Committee: Piotr Zwierzykowski, Poznań University of Technology, Poland, 2015.
- ✓ Member of Ph.D. Dissertation Committee: Marco Brunero, Politecnico di Milano, Italy, 2015.
- ✓ Reviewer of habilitation: Artur Tomaszewski, Warsaw University of Technology, Poland, 2014.
- ✓ Review of Ph.D. thesis: Błażej Adamczyk, The Silesian Technical University, Poland, 2013.
- ✓ Member of Habilitation Committee: Igor Podolak, Wrocław University of Science and Technology, Poland, 2013.
- ✓ Review of Ph.D. thesis: Tomasz Gierszewski, Gdansk University of Technology, Poland, 2011.
- ✓ Review of Ph.D. thesis: Grzegorz Debita, Wrocław University of Science and Technology, Poland, 2010.
- ✓ Review of Ph.D. thesis: Álvaro Herrero, University of Málaga Campus Teatinos, Spain, 2009.
- ✓ Review of Ph.D. thesis: Jacek Rak, Gdansk University of Technology, Poland, 2009.
- ✓ Review of Ph.D. thesis: Bruno Baruque Zanó, University of Málaga Campus Teatinos, Spain, 2009.
- ✓ Review of Ph.D. thesis: Konrad Jackowski, Wrocław University of Science and Technology, Poland, 2008.

## **F. University Service**

- ✓ Vice-dean of Doctoral School of Wrocław University of Science and Technology (2019-present).
- ✓ Director of Ph.D. Studies, Faculty of Electronics, Wrocław University of Science and Technology (2013-present).
- ✓ Member of Council of Faculty of Electronics, Wrocław University of Science and Technology (2013-2019).
- ✓ Member of Faculty Board, Faculty of Electronics, Wrocław University of Science and Technology (2008-2019).
- ✓ Member and secretary of Faculty Evaluation Committee, Faculty of Electronics, Wrocław University of Science and Technology (2012-2016).
- ✓ Member of Faculty Committee for Evaluation and Quality Assurance, Faculty of Electronics, Wrocław University of Science and Technology (2013-present).
- ✓ Member of Initiative Committee for a New Field of Studies Electronic and Computer Engineering, Faculty of Electronics, Wrocław University of Science and Technology (2015).
- ✓ Member of Faculty Committee for Ph.D. in Computer Science, Faculty of Electronics, Wrocław University of Science and Technology (2008-2012).
- ✓ Chairman of Ph.D. Committee for Przemysław Błaśkiewicz, Faculty of Electronics, Wrocław University of Science and Technology (2014).
- ✓ Chairman of Ph.D. Committee for Bartosz Krawczyk, Faculty of Electronics, Wrocław University of Science and Technology (2015).
- ✓ Chairman of Diploma Exam Committee, specialization Design of Teleinformatic Networks, field of study Teleinformatics, Faculty of Electronics, Wrocław University of Science and Technology (2008-present).
- ✓ Chairman of Program Committee for specialization Design of Teleinformatic Networks, field of study Teleinformatics, Faculty of Electronics, Wrocław University of Science and Technology (2014-present).
- ✓ Member of Diploma Exam Committee, specialization Computer Systems and Networks, field of study Computer Science, Faculty of Electronics, Wrocław University of Science and Technology (1999-2008).
- ✓ Member of Program Committee for specialization Computer Systems and Networks, field of study Computer Science, Faculty of Electronics, Wrocław University of Science and Technology (1999-present).
- ✓ Member of Program Committee for specialization Design of Teleinformatic Networks, field of study Teleinformatics, Faculty of Electronics, Wrocław University of Science and Technology (2007-present).
- ✓ Faculty coordinator for cooperation with Nokia (2005-present).
- ✓ Faculty coordinator for cooperation with Volvo IT (2009-present).
- ✓ Chairman of statutory fund project S30011/K0402, Department of Systems and Computer Networks, Faculty of Electronics, Wrocław University of Science and Technology (2013-2014).
- ✓ Chairman of statutory fund project S40029/K0402 Department of Systems and Computer Networks, Faculty of Electronics, Wrocław University of Science and Technology (2014-2015).
- ✓ Chairman of statutory fund project S50020 W4/K2 Department of Systems and Computer Networks, Faculty of Electronics, Wrocław University of Science and Technology (2015-2016).
- ✓ Chairman of statutory fund project 0401/0159/16 Department of Systems and Computer Networks, Faculty of Electronics, Wrocław University of Science and Technology (2016-2017).

## **G. Awards**

- ✓ Best Paper Award of RNDM 2015, 7th International Workshop on Reliable Networks Design and Modeling, (Munich, Germany, October, 5-7, 2015) for paper: "Comparison of Different Data Center Location Policies in Survivable Elastic Optical Networks," 2015.
- ✓ Fabio Neri Best Paper Award 2014 in Elsevier Journal of Optical Switching and Networking for paper "Routing and Spectrum Allocation Algorithms for Elastic Optical Networks with Dedicated Path Protection" (2014).
- ✓ Award in 2011 Smarter Planet Innovation Award - Smarter Communication. Sponsored by the IBM Academic Initiative (2011).
- ✓ National Education Committee Medal (2011).
- ✓ Best Paper Award of AP2PS 2010, The Second International Conference on Advances in P2P Systems, (Florence, Italy, October 25-30, 2010), for paper: "Optimization of Flows in Level-Constrained Multiple Trees for P2P Multicast System" (2010).
- ✓ Medal of the 100th Anniversary of Technical Schools in Wrocław (2010).
- ✓ Bronze Cross of Merit (2009).
- ✓ Best Paper Award of DRCN 2009, The 7th International Workshop on the Design of Reliable Communication Networks, (Washington, USA, October 25-28, 2009) for paper: "Survivability of P2P Multicasting" (2009).
- ✓ Wrocław University of Technology – Rector’s Award for Scientific Activities (2012, 2011, 2008, 2005, 2004, 2001).
- ✓ Wrocław University of Technology – Rector’s Distinction for Participation in Research Group Cooperating with Cisco (2004).
- ✓ Wrocław University of Technology – Rector’s Award for the Best Graduate (1997).
- ✓ European Community – Scholarship in Tempus Program (1996).



## **H. Teaching**

### **i. Courses taught**

- ✓ Computer Networks
- ✓ Networking Technologies
- ✓ Local Area Networks
- ✓ Wide Area Networks
- ✓ Advanced Methods for Design of Computer Networks
- ✓ Selected Aspects of Computer Networks
- ✓ Data Transmission
- ✓ Security of Computer Networks
- ✓ Programming in Cs

### **ii. Thesis Supervision**

- ✓ Over 100 M.Sc. thesis
- ✓ Over 100 Eng. thesis