Dr. Mirosław W. Mrzygłód, *PhD, DSc.*

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AREAS OF RESEARCH INTEREST

Structural Optimization, Multiaxial Fatigue, Multidisciplinary Design Optimization, Biomechanics, Artificial Intelligence

EDUCATION

2014 Doctor of Science (D.Sc.) Mechanical Engineering (Optimal Design)
Cracow University of Technology

2005 Ph.D. Mechanical Engineering (Mechanics of Materials)
Cracow University of Technology

1994 B.Sc. & M.Sc. Mechanical Engineering (Manufacturing)
Cracow University of Technology

1999 Postgraduate Diploma in Computer Science (Software engineering)
Jagiellonian University, Cracow

2006 Certificate in Tertiary Education
Cracow University of Technology

ACADEMIC POSITIONS

Associate Professor, Opole University of Technology, 2015-present

Associate Professor, Cracow University of Technology, 2014-2015

Director of the Institute, Cracow University of Technology, 2013-2014

Assistant Professor, Cracow University of Technology, 2005-2014

Research Scientist, Cracow University of Technology, 2002-2005

Project Associate, CERN (European Organization for Nuclear Research),Geneve, 2002-2005

INDUSTRIAL POSITIONS

Designer, ENERGOCONTROL Ltd, Cracow, September 1999 - April 2002

CAD/CAM Engineer, OPAKOMET , Cracow, June 1996 - September 1999

Product Engineer, TELKOM-TELOS S.A., Cracow, June 1994 - May 1996

PARTICIPATION IN RESEARCH GRANTS

1. Intensive Care Bed with Intelligent Interface, AGH University of Science and Technology, Department of Robotics and Machine Dynamics, 2000

2. Increasing Passive Safety and Economy of Technical Operation in Trams by reduction results of collisions, AGH University of Science and Technology, Warsaw University of Technology, Faculty of Transport, 2002

3. Preparation of Technical Documentation of Prototype Tram 105Nmo, AGH University of Science and Technology, Warsaw University of Technology, Faculty of Transport, 2002

4. Assessment of Building an Ecological Mountain Railway As an Element of Steady Development of a Tourist Region in Poland, EUREKA Project E!2652- Eurotourism Rail-Mount, Cracow University of Technology, Institute of Rail Vehicles, 2002

5. The Large Hadron Collider (LHC), CERN (European Organization for Nuclear Research),Geneve, 2002-2005

6. Modernization of Diesel Traction Vehicles For East-West Transit Services On The Wide-Gauge Metallurgic Railway Line, EUREKA Project E!3023- Logchain Modloc, Cracow University of Technology, Institute of Rail Vehicles, 2005

7. Modeling of Behavior of Bituminous Pavement Structures in Different Conditions of Interlayer Contact With Considering Transitional Geosynthetic Layer, Cracow University of Technology,Institute of Road and Railway Engineering, 2005

8. The analysis and optimization of stress concentration zones in pressure vessels subject to variables mechanical and thermal loads, Project of Polish Ministry of Science and Higher Education, Grant No. N513 007 32/1353, Cracow University of Technology, Institute of Machine Design, 2007

9. F4E-FPA-327 Diagnostics Design and Development of the Radial Neutron Camera (RNC) and Radial Gamma-Ray Spectrometer (RGRS) for ITER, Fusion for Energy (F4E) - European Union's Joint Undertaking for ITER and the Development of Fusion Energy, IFJ-PAN, 2014-2016

10. F4E-GRT-403 (DG) - Conceptual Design and Interface Specifications of High Resolution Neutron Spectrometer, Fusion for Energy (F4E) - European Union's Joint Undertaking for ITER and the Development of Fusion Energy, IFJ-PAN, 2015-2016

11. Evolutionary algorithms dedicated to topology optimization of lightweight structures with fatigue constraints, Miniature Project of National Science Centre, Opole University of Technology, 2018

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- Member of Polish Society of Theoretical and Applied Mechanics (2015-present)
- Member of Institute for System and Technologies of Information Control and Comunication (INSTICC) (2013-present)
- Associated Member of Computational Methods and Optimization Section at the Committee of Mechanics of the Polish Academy of Sciences (PAN) (2012-2016)
- Member of International Society for Structural and Multidisciplinary Optimization (ISSMO) (2005-present).
- Member of American Institute of Aeronautics and Astronautics (AIAA) (2006-2009).

COURSES TAUGHT

- Fundamentals of machine design, 2015-present
- Advanced CAE design,2015-present
- CAD/CAE,2010-present
- Diploma Seminar, 2008-present
- Interim project, 2006-present
- Finite element method, 2004-present
- Computer Aided Design, 2002-present
- Computer modeling of biomechanical systems, 2012-2015
- Design and optimization of logistics networks, 2012-2015
- Management and Control of Transportation Systems, 2010-2015
- Transportation systems, 2006-2015
- Operational Research, 2005-2015
- Ergonomics, 2005-2010

SEMINAR PRESENTATIONS

1. Presented a seminar at Department of Machine Design, Cracow University of Technology,
June 3, 2004

2. Presented a seminar at Department of Mechanics of Materials, Cracow University of Technology
November 9, 2004

3. Presented a seminar at Department of Strength of Materials, Institute of Fundamental Technological Research, Polish Academy of Science, Warsaw
March 1, 2005

4. Presented a seminar at Institute of Machine Design, Cracow University of Technology
March 10, 2005

5. Presented a seminar at Department of Mechanics of Materials, Cracow University of Technology
October 18, 2005

6. Presented a seminar at Department of Mechanics and Computer Engineering Methods, University of Bielsko-Biala
March 30, 2007

7. Presented a seminar at Institute of Machine Design, Cracow University of Technology
January 22, 2008

8. Presented a seminar at Department of Mechanics of Materials, Cracow University of Technology
March 11, 2008

9. Presented a seminar at Department of Mechanics of Materials, Cracow University of Technology
November 10, 2009

10. Presented a seminar at Faculty of Civil Engineering, Warsaw University of Technology
December 16, 2009

11. Presented a seminar at Department of Mechanics of Materials, Cracow University of Technology
November 16, 2010

12. Presented a seminar at Department of Mechanics of Materials, Cracow University of Technology
November 15, 2011

13. Presented a seminar at Department of Mechanics of Materials, Cracow University of Technology

June 10, 2012

14. Presented a seminar at Institute of Rail Vehicles, Cracow University of Technology
May 7, 2013

15. Presented a seminar at Faculty of Mechanical Engineering, Cracow University of Technology
February 12, 2014

16. Presented a seminar at Institute of Rail Vehicles, Cracow University of Technology
June 12, 2014

16. Presented a seminar at Faculty of Mechanical Engineering, Opole University of Technology January 19, 2015

17. Presented a seminar at Department of Mechanics and Machine Design, Opole University of Technology, October 7, 2015

18. Presented a seminar at 10'th PhD Workshops of OUT, Opole University of Technology, June 15, 2015

19. Presented a seminar at Department of Mechanics and Machine Design, Opole University of Technology, October 12, 2016

PUBLICATIONS

Papers Submitted to and Accepted for Publication or Published in Technical Journals with Rigorous Review Procedures

1. Mrzyglod M, Application of ANSYS System to Parametric Structure Optimization, Czasopismo techniczne: Mechanika, 6-M,99-114,2003 (in Polish)

2. Mrzyglod M., FE-Based Durability Design of Vehicle Part, Problemy Eksploatacji, Instytut Technologii Eksploatacji,2(49),155-164, 2003 (in Polish)

3. Kuczek T., Mrzyglod M., Application of Modern Ergonomics CAD Tools to Achieve the Optimal Design of the Locomotive Driver's Cab, Zeszyty Naukowe Politechniki Slaskiej, 49,189-194,2003 (in Polish)

4. Mrzyglod M., Optimization of Mechanical Structures with Using Evolutionary Algorithms and Parallel Computing Technique, Czasopismo Techniczne: Mechanika 10-M/03,91-98,2005 (in Polish)

5. Mrzyglod M., Zielinski A. P., Numerical Implementation of Multiaxial High-Cycle Fatigue Criterion to Structural Optimization, Journal of Theoretical and Applied Mechanics,44,3,691-712,2006

6. Mrzyglod M., Structure Optimization of Rail Vehicles Using Evolutionary Algorithms and Parallel Computing, Zeszyty naukowe Instytutu Pojazdow Politechnika Warszawska, Instytut Pojazdow, Warszawa, 1(61),191-196,2006 (in Polish)

7. Mrzyglod M., Zielinski A. P., Parametric Structural Optimization with Respect to the Multiaxial High-Cycle Fatigue Criterion, Journal of Structural and Multidisciplinary Optimization,33,161-171,2007, DOI 10.1007/ s00158-006-0045-7

8. Mrzyglod M., Zielinski A. P., Multiaxial high-cycle fatigue constraints in structural optimization, International Journal of Fatigue, 29, 9-11, 1920-1926, 2007, DOI:10.1016/ j.ijfatigue.2007.01.032

9. Mrzyglod M., Michalik M., Topology optimization with stress constraint of vehicle structure, Pomiary, Automatyka, Kontrola, 7, 429-432, 2008 (in Polish)

10. Farbaniec L., Mrzyglod M., Fatigue life cycle analysis algorithm for modernized railway vehicles, Problemy Eksploatacji, 1(72), 59-65, 2009 (in Polish)

11. Farbaniec L., Mrzyglod M., Simulation investigation of dynamics of modernized rail vehicles, Problemy Eksploatacji, 1(72), 67-74, 2009 (in Polish)

12. Mrzygłód M., Two-stage optimization method with fatigue constraints for thin-walled structures, Journal of Theoretical and Applied Mechanics, , 48, 3, 567-578, 2010

13. Mrzyglod M., Multi-constrained topology optimization using constant criterion surface algorithm, Bulletin of the Polish Academy of Sciences - Technical Sciences, 60(2): 229-236, 2012

14. Lorkowski J., Mrzyglod M., Hladki W., Zjawiska remodelingu i dostosowania topologii w kosci pietowej z torbiela samotna / Phenomenon of remodeling and adjustment the topology of the calcaneus with a solitary cyst - case report , Przeglad Lekarski 69 (5): 201-204, 2012

15. Lorkowski J., Mrzyglod M., Kotela I., Kiełbasiewicz-Lorkowska E., Teul I., Obuwie zgodne z „business dress code" a kondycja zdrowotnastóp kobiet – komputerowo wspomagana ocena holistyczna, Roczniki Pomorskiej Akademii Medycznej w Szczecinie, 59 (2):118-128, 2013

16. Mrzyglod M., Kuczek T., Uniform crashw orthiness optimization of car body for high-speed trains, Struct Multidisc Optim, 49(2):327-336, 2014, DOI 10.1007/s00158-013-0972-z

17. Lorkowski J., Mrzygłód M.W., Kotela A., Kotela I., Application of Rapid Computer Modeling in the Analysis of the Stabilization Method in Intraoperative Femoral Bone Shaft Fracture During Revision Hip Arthroplasty–A Case Report, Polish orthopedics and traumatology, 79, 138-144, 2014

18. Lorkowski J., Mrzyglod M., Kotela I., Heterogeniczne dzialanie asymetrii wieloosiowego obciazenia obreczy konczyny dolnej z powodu odleglych nastepstw nieleczonej dysplazji stawow biodrowych, Chir. Narzadow Ruchu Ortop. Pol., 79:238-245, ISSN 0009-479X, 2014

19. Lorkowski J., Mrzyglod M. W., Grzegorowska O., Finite Elements Modeling in Diagnostics of Small Closed Pneumothorax, Advances in Experimental Medicine and Biology - Neuroscience and Respiration, DOI 10.1007/5584_2015_150, 2015

20. Lorkowski J., Mrzygłód M. W., Grzegorowska O., Kotela I., An in Silico Analysis of Ankle Joint Loads in Secondary Ankle Osteoarthritis. Case Study, Ortopedia, traumatologia, rehabilitacja 17 (3), 305, 2015

21. Lorkowski J., Mrzygłód M. W., Grzegorowska O., Kotela I., Causes of damage to the locking compression plate stabilizing the fracture of the distal tibia and distal end of the tibia, Pomeranian J Life Sci 62(2):66-69, 2016

22. Mrzygłód M. W., Kurek M., Łagoda T., The application of the criteria of multiaxial fatigue in the critical plane for the topology optimization of a structure, AIP Publishing, (1780):030003-1-6, doi: 10.1063/1.4965944, 2016

23. Kurek M., Mrzygłód M. W., Łagoda T., Zastosowanie nowego modelu szacowania trwałości zmęczeniowej do projektowania konstrukcji pracujących w podwyższonych temperaturach, Energetyka, problemy energetyki i gospodarki paliwowo – energetycznej, (69) 11: 678-681, 2016 (in Polish)

24. Duda P., Mrzygłód M. W., Shape optimization of a thick-walled power boiler component, E3S Web of Conferences, (13): 05002, 2017

25. Mrzygłód M. W., Duda P., Topology Optimization of Structures Subjected to Transient Thermomechanical Loading, In: Rusiński E., Pietrusiak D. (eds) Proceedings of the 13th International Scientific Conference, RESRB 2016. Lecture Notes in Mechanical Engineering. Springer, Cham, 383-388, doi:10.1007/978-3-319-50938-9_39, 2017

Papers Published in Conference Proceedings

1. Sliwa Z., Uhl T., Mrzyglod M., Virtual Prototyping with Using Data from 3D Scanning System, The Second Country Conference, Methods and Systems in Scientific Research And Engineering Design, (Eds.R. Tadeusiewicz et al.), Cracow Centre for Advanced Training in Information Engineering, Cracow, 115-118, 1999 (in Polish)

2. Mrzyglod M., Simulating Optimisation of Ergonomics Properties of The Driver's Cab of Rail Vehicle, Conference Transport,IST - Innovations and Technology, National Contact Point for Research Programmes of the EU, Warsaw, December 9,2003 (in Polish)

3. Mrzyglod M., Zielinski A. P., Parametric Structural Optimization with Multiaxial High-Cycle Fatigue Criterion, Proceedings of 6th World Congress on Structural and Multi-disciplinary Optimization, edited by J. Herskovits at all, International Society for Structural and Multidisciplinary Optimization, Rio de Janeiro, Brazil, paper 3051, 2005

4. Osyczka A., Mrzyglod M., Evolutionary Optimization of Mechanical Structures in Computer Simulated Environment, Proceedings of 6th World Congress on Structural and Multi-disciplinary Optimization, edited by J. Herskovits at all, International Society for Structural and Multidisciplinary Optimization, Rio de Janeiro, Brazil, paper 281,2005

5. Mrzyglod M., Osyczka A., Parallel Computing for Design Optimization with Computationally Expensive Functions using Evolutionary Algorithms, in B.H.V. Topping, (Editor), "Proceedings of the Eighth International Conference on the Application of Artificial Intelligence to Civil, Structural and Environmental Engineering", Civil-Comp Press, Stirlingshire, UK, Paper 26, 2005, DOI:10.4203/ccp.82.26

6. Mrzyglod M., Osyczka A., Parallel Evolutionary Computing Techniques for Design Optimization of Railway Vehicle Structures, Proceedings of 7th World Congress on Railway Research, Montreal June 4-8, Canada, 2006 (abstract)

7. Mrzyglod M., Osyczka A., Optimization of Railway Vehicle Structures Using Evolutionary Algorithms and Parallel Computing Techniques, Collection of Technical Papers - 11th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference 2, 1036-1041, 2006

8. Mrzyglod M., Zielinski A. P. ,Structural optimization with multiaxial high-cycle fatigue constrains, Proceedings of International Conference on Fatigue Damage of Structural Materials VI, Hyannis, September 16-22, MA, USA, 2006 (abstract)

9. Mrzyglod M., Structure Optimization of Rail Vehicles Using Evolutionary Algorithms and Parallel Computing, Proceedings of the XVII Science Conference Rail Vehicle 2006, Kazimierz Dolny, Poland, September 13-15,Oficyna Wydawnicza Politechniki Warszawskiej, 215-220, 2006 (in Polish)

10. Mrzyglod M., Topology Optimization of Railway Vehicle Structure,Proceedings of the International Railway Symposium 2006, Ankara-Istambul December 13-15,1,345-349,2006

11. Mrzyglod M., Osyczka A., Two-Stage Optimization Methodology for Large Structures , Proceedings of 7th World Congress on Structural and Multi-disciplinary Optimization, International Society for Structural and Multidisciplinary Optimization, Seoul, 1051-1056, 2007

12. Mrzyglod M., Structural Optimization of Railway Vehicles Against Fatigue Failure, The Third International Conference on Engineering Failure Analysis (ICEFA III), Spain, 2008 (abstract)

13. Mrzyglod M., Zielinski A. P., Topology Optimization With Fatigue Constraints of Nozzle Connections of Pressure Vessels, The WCCM8 / ECCOMAS 2008 Congress, Venice,2008

14. Mrzyglod M., Topology optimization of structures subjected to high-cycle load conditions, 12th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, Victoria, paper AIAA-2008-5839, 2008

15. Mrzyglod M., Using layer expansion algorithm in topology optimization with stress constraints, Proceedings of CMM-2009 - Computer Methods in Mechanics , The University of Zielona Góra Press, 319-320, 2009

16. Mrzyglod M., Two-stage optimization approach for thin-walled structures subjected to high-cycle load conditions, Proceedings of CMM-2009 - Computer Methods in Mechanics , The University of Zielona Góra Press, 321-322, 2009

17. Mrzyglod M., Using Filtering In The Topology Optimization With Stress Constraints, Proceedings of 8th World Congress on Structural and Multidisciplinary Optimization, International Society for Structural and Multidisciplinary Optimization, Lisbon, Paper 1672, 2009

18. Farbaniec L., Mrzyglod M., Fatigue life cycle analysis algorithm for modernized railway vehicles, Proceedings of 6th International Conference: Quality, Safety and Ecology in Vehicles, Cracow University of Technology, Cracow, 69-76, 2009 (in Polish)

19. Farbaniec L., Mrzyglod M., Simulation investigation of dynamics of modernized rail vehicles, Proceedings of 6th International Conference: Quality, Safety and Ecology in Vehicles, Cracow University of Technology, Cracow, 77-84, 2009 (in Polish)

20. Mrzyglod M., Zielinski A.P., Low-cycle fatigue constraints in two-stage structural optimization of a nozzle to pressure vessel connection, Proceedings of EUROGEN 2009 conference, ECCOMAS, Cracow / Gliwice, 77-78, 2009

21. Mrzyglod M., Zielinski A. P., Proceedings of the Ninth International Conference on Multiaxial Fatigue & Fracture, Parma, Italy, pp. 803-810, 2010

22. Mrzyglod M., Multi-constrained topology optimization using constant surface algorithm, Proceedings of CMM-2011 - Computer Methods in Mechanics, Warsaw University of Technology, Warsaw, Poland, pp.377-378, 2011

23. Mrzyglod M., Application of Topology Optimization with Fatigue Constraints to Bone Implant Design, Proceedings of the 9th World Congress on Structural and Multidisciplinary Optimization, International Society for Structural and Multidisciplinary Optimization, Shizuoka, Japan, abstract 312_1, 2011

24. Kuczek T., Mrzyglod M., Crashworthiness Optimization of Car Body for High-Speed Trains, Proceedings of the 9th World Congress on Structural and Multidisciplinary Optimization, International Society for Structural and Multidisciplinary Optimization, Shizuoka, Japan, paper 351_1, 2011

25. Mrzyglod M., A Method of Voids Size Identification for 2D and 3D Topology, Proceedings of the 2nd International Conference on Inverse Problems in Mechanics, IPM2011 ECCOMAS Thematic Conference, Rzeszow University of Technology, Rzeszow, Poland, pp.73-74, 2011

26. Kuczek T., Mrzyglod M., Structure optimization of high-speed train car body to improve passive safety, Proceedings of 8th International Conference: Quality, Safety and Ecology in Transport, Cracow University of Technology, Cracow, pp. 227-235, 2011 (in Polish)

27. Mrzyglod M., Application of bio-inspired algorithm of structural optimization to automated design. Proceedings of the 4th International Joint Conference on Computational Intelligence,302-305, 2012 SciTePress. DOI:10.5220/0004157803020305

28. Lorkowski J., Mrzyglod M., Application of bone remodelling phenomena simulation to computer aided surgical interventions, 20th International Conference on Computer Methods in Mechanics (CMM2013) - Short Papers, Institute of Structural Engineering, Poznan University of Technology, Poznan, (MS01) pp.3-4, ISBN 978-83-89333-51-1, 2013

29. Mrzyglod M., A new methodology for fatigue design of freight cars, World Congress on Railway Research 2013, 25 - 28 November 2013, Sydney, Australia

30. Lorkowski J., Mrzyglod M., Kotela A., Kotela I., Analysis of damage the LCP plate stabilizing the distal end and a distal part of tibial shaft fracture, Proceedings of 7th International Forum on Innovative Technology for Medicine ITMED 2013,(Ed. Warszycki M.), Abstract no 29, p. 41, Innovation Eastern Poland Association, 2013

31. Mrzyglod M., Using topology optimization in lightweight design of fatigue resistant structures, The 11th World Congress on Computational Mechanics, July 20 - 25, 2014, Barcelona, Spain, 2014

32. Mrzyglod M.W., The evolutionary method for topology optimization of super-light structures, 4th International Conference on Engineering Optimization, EngOpt 2014, 35-36, 2014

33. Lorkowski J., Mrzygłód M., Grzegorowska O., Kotela I., Small closed pneumothorax conjugated mechanical-fluid analysis using fast modeling MES 3D method. International Conference Advances in Pneumology, October 17-18, Wieliczka, Poland, 2014

34. Mrzyglod M. W., Car body with multiple survival cells of high uniform stiffness: The new concept of increasing passive safety of high-speed trains, Proceedings of the 10th symposium PASSIVE SAFETY, 7 - 8 May 2015, Berlin , Germany, 2015

35. Mrzyglod M. W., A new procedure of solution search stabilization for evolutionary topology optimization, Proceedings of PCM-CMM-2015 - 3rd Polish Congress of Mechanics & 21st Computer Methods in Mechanics, September 8th - 11th 2015, Gdansk, Poland, 2015

36. Mrzygłód M., Dokładne rozwiązania dla optymalizacji topologicznej konstrukcji z ograniczeniami zmęczeniowymi i statycznymi, XXVI Sympozjum Zmęczenie i Mechanika Pękania, Bydgoszcz - Fojutowo, s.89-90, maj 2016 (in Polish)

37. Lorkowski J. Mrzygłód M. W., Kotela I., Analiza in silico jako działanie interdyscyplinarne w leczeniu złamań okołoprotezowych, XXIII edycja Międzynarodowego Dnia Inwalidy - Konferencja Naukowa, Zgorzelec, 2017 (in Polish)

38. Mrzygłód M. W., An application of soft layer procedure to topology optimization of superlight structure, XII Konferencja "Nowe Kierunki Rozwoju Mechaniki", Białystok – Supraśl, 2017

39. Mrzygłód M. W., Lachowicz C. T., An application of automatic shape parameter identification to rapid modeling of representative volume element, ECCOMAS International Conference IPM 2017 on Inverse Problems in Mechanics of Structure and Materials, Rzeszów-Krasiczyn, 2017

40. Mrzygłód M. W., Alternative quasi-optimal solutions in evolutionary topology optimization, CMM-2017 – 22nd Computer Methods in Mechanics, Lublin, September 13th–16th 2017

Technical Reports

1. Mrzyglod M, Static analysis of DFB Vacuum Vessel, CERN, Geneve, 2002

2. Mrzyglod M., DFBA Shuffling Module - Summary and Result of Finite Element Analysis, CERN, Geneve, 2003

3. Mrzyglod M., Simulating investigations of durability of rail bus under-frame, Chapter 4 of KBN project report 6-T120872001/C/573, Institute of Rail Vehicles , Cracow University of Technology, 30-40, 2004

4. Mrzyglod M., The preparation of procedure for parametric analysis of structure life based on ANSYS, ADAMS and FE-Fatigue software, Part II of Research Report M8/548/BW/2004, Institute of Rail Vehicles, Cracow University of Technology, 2004

5. Mrzyglod M., Building Software Application of Parallel Optimization Calculation with Using Genetic Algorithm, Part III of Research Report M8/548/BW/2004, Institute of Rail Vehicles, Cracow University of Technology, 2004

6. Mrzyglod M., Interoperability Between CAD & FEA - the CATIA V5 and ANSYS Study, CERN, Geneve, 2004

7. Mrzyglod M., Rail-wheel contact analysis for wheels profiles UD00.609 and 30UIC135, Chapter V of the M-8/605/2006 Research Report, Institute of Rail Vehicle, 2006

8. Mrzyglod M., Ergonomics investigation of the locomotive driver's cab, Research Report RB/M85/03/07, Institute of Rail Vehicles, Cracow University of Technology, 2007

9. Mrzyglod M., Optimization of fatigue life of vehicle components, Part V of Research Report M8/BW/2008, Institute of Rail Vehicles, Cracow University of Technology, 2008

10. Mrzyglod M., Investigation on reasons of defects that occurred in the connecting elements: Analytical and FEM calculation, , Part V of Research Report M8/485/2008, Institute of Rail Vehicles, Cracow University of Technology, 2008

11. Mrzygłód M., Romanowicz P., Szybiński B., High-cycle fatigue endurance assessment of the cylindrical pressure vessel with the stress relieving groove of the nozzle flat ends, Report IKM 5/2008 and PB-1353/T02/2007/32, 2008

12. Mrzygłód M., Błocki J., F4E-FPA-327, Report on deliverable d12f for specific grant 03 Part 1, Electromagnetic and Structural Analysis of the Radial Neutron Camera Components, 2016

13. Mrzygłód M., Bocian D., F4E-FPA-327, Report on deliverable d12f for specific grant 03 Part 2, Magnetic shielding for detectors of the Radial Neutron Camera, 2016

14. Mrzygłód M., Hajduk L., F4E-GRT-403, System Design Description Document, High Resolution Neutron Spectrometer DDD-PBS 55.BB, Appendix 3, Results of shielding calculations for HRNS equipment sensitive to magnetic field, 2016

Books

1. Mrzyglod M., Kuczek T., Projektowanie konstrukcji 3D w programie Catia V5, [Design of 3D structures in the Catia V5] Politechnika Krakowska, ISBN 978-83-7242-567-6, 2010, (in Polish)

2. Mrzyglod M., Algorytm optymalizacji topologicznej konstrukcji ciaglych z ograniczeniami zmeczeniowymi, [Algorithm of topology optimization of continuous structures with fatigue constraints] Wydawnictwo Politechniki Krakowskiej, Monografia 431. Mechanika, ISSN 0860-097X, 2013 (in Polish)

3. Mrzyglod M., Podstawy analizy wytrzymałościowej konstrukcji w programie ANSYS/Mechanical APDL, [Fundamentals of strength analysis of the structure in the ANSYS / Mechanical APDL] Politechnika Krakowska, ISBN 978-83-7242-758-8, 2014 (in Polish)

JOURNAL AND PROPOSAL REVIEWER

- Computer Assisted Mechanics and Engineering Sciences
- International Journal of Fatigue
- International Journal of Heavy Vehicle Systems
- International Journal of Vehicle Structures and Systems
- International Railway Symposium II (IRSTURKEY)
- Journal of Rail and Rapid Transit
- Journal of Theoretical and Applied Mechanics
- Journal of Zhejiang University - Science A
- Periodica Polytechnica Civil Engineering

- Structural and Multidisciplinary Optimization
- The Arabian Journal for Science and Engineering B: Engineering

THESES DIRECTED

PhD

- Piskorowska B., (in progress)

MSc

- Koryl G., Design optimization of aircraft wing with using Fluid Structure Interaction (FSI) analysis, 2014
- Bucior T., Topology optimization the structure of the tank wagon,2014
- Faltyn W., Structural health monitoring of the railcar underframe using a computer-aided visual method, 2012
- Ras A., Optimization of bus body structure using topology optimization method, 2011
- Farbaniec L., Numerical fatigue life cycle analysis for modernized railway vehicles, 2008
- Dziedzic L., The model study of transport system of the Krakow city, 2008
- Michalik M., Topology optimization of road vehicle structure, 2008
- Starzycki R., Parametric description of CAD representation for purpose of evolutionary optimization, 2007

BSc

- Kobylański M., Design of the body of light electric vehicle, 2017
- Jokel P., Design of underframe of electric vehicle, 2017
- Ryzner D., Design optimization of the superelastic tire, 2017
- Jakubek D., The simulation model of contact for selected subassembly of rail vehicle, 2014
- Wierzbicki L., The design of innovative container for LDHV goods' transport, 2014
- Wnęk D., Crashworthiness optimization of passenger railcar walls, 2013
- Gęboliś P., Design of 409v railcar dumper digital mock-up model with using CATIA V5, 2013
- Wnęk D., Crashworthiness optimization of passenger railcar walls, 2013
- Szpytma B., Structure optimization of selected component of SUW 2000 system, 2011
- Sromek L., The ergonomics analysis of railway vehicle, 2008
- Jurus A., The fatigue life estimation of railway vehicles, 2008