doc. RNDr. Jaroslav Mlýnek, CSc.

(associate professor)

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Education

1981 Graduation at Faculty of Mathematics and Physics, Charles University in Prague
Specialisation: numerical mathematics

1985 Doctorate (RNDr.) at Faculty of Mathematics and Physics, Charles University in Prague
Specialisation: numerical mathematics

1992 Academic degree CSc. (corresponding to Ph.D.),
Institute of Mathematics of the Academy of Sciences of the Czech Republic
Specialisation: numerical mathematics

2001 CRAMM (CCTA Risk Analysis and Management Method) training – methodology of information system risk analysis implementation by SW tool application, London, UK

2007 Pedagogical-academic degree of associate professor (doc.) in the area of science engineering, Faculty of Mechatronics, Informatics and Interdisciplinary Studies, Technical University of Liberec

Practical experience

1981 – 1990 Research Institution of Electrical Engineering, Prague - Běchovice

Numerical solutions of the heat conduction problems in electrical machines, especially in high-voltage transformers; solutions of above mentioned problems in case of stationary load of an electrical machine – problem was usually described by an elliptical partial differential equation of 2nd order and Newton's boundary condition and solved by the method of finite elements and method of finite volumes; solutions of problems in case of dynamic load of an electrical machine by use of artificial heat network, describing of the problem by system of linear ordinary differential equations; solutions of large sparse systems of linear algebraic equations in real and complex area; programming in the languages Fortran, Algol, Pascal, Assembler.

1990 – 1992 University of Economics, Prague

Lectures and tutorials of a basic mathematics course, programming in the languages FoxPro, Pascal.

1993 – 2004 Komerční banka – Headquarters, Prague

Focus on security information:

- cryptography – implementations of cryptography tools, symmetric cipher algorithms, asymmetric cipher algorithms, hash functions
- digital signature, checksums, problems of public keys certificates and certificate authorities
- information classification and adequate security of information (including cryptographic tools)
- implementation of risks analysis and business impact analysis
- member of the CRAMM (CCTA Risk Analysis and Management Method) User Group, London, UK
- management of security electrical information bank projects

2004 – present Technical University of Liberec;
Department of Mathematics and Didactics of Mathematics; Faculty of Science, Humanities and Education

Tutorials

- lectures and tutorials of the courses *Mathematics 1* and *Mathematics 2* – Faculty of Economics
- lectures of the course *Security of Business Information* - Faculty of Economics
- lectures of the course *Information and Crisis Management* - Faculty of Economics
- lectures and tutorials of the course *Cryptography and Information Security* - Faculty of Science, Humanities and Education
- lectures of the course *Numerical Modelling in Electrical Engineering* - Faculty of Science, Humanities and Education
- lectures and tutorials of the course *Management of Information Security* - Faculty of Economics - for Ph.D. students

Guarantor of courses

- *Mathematics* – Faculty of Economics
- *Mathematics 1* – Faculty of Economics
- *Mathematics 2* – Faculty of Economics
- *Information Security* - Faculty of Science, Humanities and Education, Master´s degree, field: Teaching of informatics - primary school, high school
- *Cryptography and Information Security* – Faculty of Science, Humanities and Education, Master´s degree, field: Teaching of mathematics - primary school, high school
- *Security of Business Information* - Faculty of Economics
- *Information and Crisis Management* - Faculty of Economics
- *Numerical Modelling in Electrical Engineering* – Faculty of Science, Humanities and Education
- *Selected Parts of Numerical Mathematics* - Faculty of Science, Humanities and Education
- *Information Security Risk Management* - Faculty of Science, Humanities and Education
- *Basics of Data Processing* – Faculty of Science, Humanities and Education
- *Management of Information Security* - Faculty of Economics

Participation in management of Department of Mathematics and Didactics of Mathematics

2004 – 2009 secretary of department
2009 – 2020 head of Department of Mathematics and Didactics of Mathematics

Participation in professional committees

- member of Subject Area Board of doctor study program Applied Mathematics
- member of State Final Examinations Committee of bachelor and master study of Applied Mathematics
- member of State Final Examinations Committee of bachelor and master study of Informatics

Professional activities

- publication of original research articles in area of heat conduction in electrical machines
- calculations of heat conduction in electrical machines by use of SW Matlab
- calculation of industrial robot trajectory and its optimization
- polymer composite frame manufacturing technology - optimisation of fibre winding on the non-load-bearing frame
- publication in area security of electronic information and management of information system security

Participation in research projects

- 2005 – 2006 - IGS 116/5130/1: member of the research team of the internal grant *Waveletové metody řešení diferenciálních rovnic (Wavelet Methods of Differential Equations Solutions)*

- 2006 – 2009 - CD-JEP- 2005: EU-UA *Master Degree in Software Engineering*, project within the frame of the European Union (international cooperation of Germany, Poland, Czech Republic and Ukraine), cooperation in implementation of new courses in the area of information security at technical universities in Zaporizhia and Zhitomir in Ukraine, research fellowship at university in Zaporizhia in October 2007 and July 2009.

- 2007 – 2009 - member of the research team of the research centre *Pokročilé sanační technologie a procesy (Advanced Rescue Technologies and Processes)*, project 1M0554 of the Research centre program PP2-DP01. I solved a problem of model designation of uniform intensity of heat radiation on the surface of moulds in car industry.

- 2008 – Statutory town Liberec/1673 - manager of the project *Je matematika obtížná?* (Is mathematics difficult?) – mathematical seminars for high school students of Liberec region organized by Department of Mathematics and Didactics of Mathematics of Technical University of Liberec.

- 2009 – 2012 - member of the research team of the project MPO/FR-TI1/266 I*novace technologie a výroby umělých kůží (Innovation of the Technologies and Productions of Artificial Leathers),* solution of uniform warming of moulds in car industry. I focused on the problem of interpolation of experimentally measured values of radiation intensity of infra-heaters and interpolations of functions values of more variables. I solved optimization of locations of heaters above the mould too.

- 2009 - 2012 - ESF project - member of the research team of the project CZ.1.07/2.3.00/09.0155 *Vytvoření a rozvoj týmu pro náročné technické výpočty na paralelních počítačích* (*Constitution and improvement of a team for demanding technical computations on parallel computers at TU Liberec*).

- 2011 - 2012 - ESF project - member of the research team of the project CZ.1.07/2.2.00/18.0026 *Kombinované studijní obory vzdělávání učitelů na Fakultě přírodovědně-humanitní a pedagogické Technické univerzity v Liberci* (*Distance studies for teachers at Faculty of science, humanities and education of Technical University of Liberec*).

- 2013 - 2015 - member of the research team of the project CZ.1.05/2.1.00/01.0005 OP VaVpI *Centrum pro nanomateriály, pokročilé technologie a inovace* (*Center for nanomaterials, advanced technology and innovation*), I focuse on the problem of kinematic analysis of robotic workplace.

- 2014 – 2015 - member of the research team of the project NPU I Rozvoj Ústavu pro nanomateriály , pokročilé technologie a inovace (Development of Centre for nanomaterials, advanced technologies and innovations) LO 1201, I solved the problem of calculation of the industry robot trajectory in the production of composites.

- 2014 – 2015 - SGS 21049/2014 – member of the research team of the internal student grant *Matematické modely vedení tepla* (Mathematical models of heat conductions).

- 2016 – SGS 21167/2016 – 2017 - member of the research team of the internal student grant *Numerické modelování nestacionárního vedení tepla* (Numerical modelling of non-stationary heat conduction).

- 2016 – member of the research team of the project TAČR TF02000051 *Rozvoj technologie a výroba jednodílných GFRP lopatek pro větrné elektrárny* (*Technology development and manufacturing one-piece FRP blades for wind power station*), I focused on the problem robot trajectory of industrial robot optimization during production of composite blade.

- 2016 – member of the research team of the project TAČR TH01020796 *Optimalizace tepelných toků na laminovacím stroji s použitím moderních metod modelování* (*Optimization of the heat fluxes on a laminating machine using modern methods of modelling*).

- 2018 – 2019 - member of the research team of the internal student grant *Matematické modelování ohřevu a vedení tepla v tenkostěnných kovových formách* (Mathematical modelling of heating and heat conduction in shell metal moulds).

- 2018 – 2019 - member of the research team of the project TAČR TH03010353 *Zavedení pokročilých metod augmented reality jako jednoho z pilířů Industry 4.0 při návrhu designu a vývoje průmyslového výrobku* (The introduction of advanced methods of augemented reality as one of the pillars of Industry 4.0).

- 2018 – 2022 -member of the research team of the project OP VVV CZ02.1.01/0.0/0.0/16_025/0007293 Modulární platforma pro autonomní podvozky specializovaných elektrovozidel pro dopravu nákladu a zařízení (ANTeTUL – Modular platform for autonomous chassis of specialized electric vehicles for freight and equipment transportation).
- 2019 - 2020 - member of the research team of the project TAČR TF06000085 Adaptivní technologie 3D tisku na bázi extrudéru pro přesnou a efektivní sériovou výrobu (Extruder-based adaptive 3D printing technology for accurate and efficient serial production).

- 2019 – 2020 - member of the team of the project CZ.02.2.6/0.0/0.0/16_015/0002329 Rozvoj lidských zdrojů TUL pro zvyšování relevance, kvality a přístupu ke vzdělání v podmínkách Průmyslu 4.0 (The Educational Infrastructure of the TUL to Raise the Relevance, Quality and Advancement of Education in the Age of Industry 4.0)

Membership in professional societies

- JČMF (Union of Czech Mathematicians and Physicists) - vice chairman of branch office in Liberec (2010 – still)

Foreign stay

- 10/2007, 7/2009 Zaporizhzhya National Technical University, Zaporizhzhya, Ukraine
- 5/2011 Institute of Computational Mathematics, Johannes Kepler University Linz, Austria
- 5/2015 Institute of Mathematics, Pedagogical University of Cracow, Cracow, Poland
- 11/2018 Visit of universities in India – invited speaker (Indian Institute of Technology Delhi, Indian Institute of Technology Kanpur, B.S.M. Institute of Technology and Management, Bangalore)
- 11/2023 Visit Indian Institute of Technology Delhi, New Delhi, India. Plenary speaker at the 1st Indo-Japan Textile Research Conference 27th and 28th November 2023, IIT Delhi, Jointly Organized By Indian Institute Of Technology Delhi and Shinshu University, Japan. Lecture topic: “Optimization of winding filaments in curved composite frame”.

  https://tu-dresden.de/ing/maschinenwesen/ilk/ressourcen/dateien/internationales/IJTRC-Program-Schedule.pdf?lang=de,
  https://www.technicaltextile.net/events/indo-japan-textile-research-conference-2023-61936

Promotion of the Technical University of Liberec

- 6/2018 Working Conference of China-Czech Jointly Coordinating and Monitoring Cooperation Plan and Projects under the Framework of the Belt and Road Initiative, Yiwu, China - presentation of professional results and cooperation negotiations of Technical University of Liberec with universities and development institutions and industrial enterprises in China, the meeting was organized by the Ministry of Industry and Trade of the Czech Republic

- 11/2018 Member of working team representing Technical University of Liberec at the

Working meeting of Czech business delegation and Federation of Karnataga Chambers of Commerce and Industry. Meeting was organized in Bengalore by the Ministry of Industry and Trade of the Czech Republic and by the Embassy of the Czech Republic in New Delhi. The possibilities for cooperation in industry and education in India have been discussed.

- 7/2023 Brussel, official meeting with the Ambassador - Permanent Representation of the Czech Republic to the European Union, discussion of the participation of the Technical University of Liberec in European projects supported by the EU.

- 11/2023 Member of the TUL working team at the Embassy of the Czech Republic in New Delhi, India, negotiations on the possibilities for Indian students to study at TUL and vice versa. Negotiations on further professional collaboration TUL with Department of Textile and Fibre Engineering Indian Institute of Technology Delhi, New Delhi, India.

- 01/2025/ Visit to the University of Munich (Germany) - Centre for Composite Development, Faculty of Mechanical Engineering – Prof. Dr. Ing. Tobias Dickhut, existing collaboration on scientific articles, discussed possibilities of further cooperation, submission of a joint project

International patent

2022 - submition an international patent application – Mlýnek, J., Petrů, M., Martinec, T., Koloor, S., S., R. : *Combined winding of fibers on a composite frame*. International Patent Application, No. PCT/CZ2022/050008, European Patent Office D-80298 Munich.

Excellent evaluation of the output activities in the M17+ assessment in module M1

2023 - *Modulární platforma pro autonomní podvozky specializovaných elektrovozidel pro dopravu nákladů a zařízení – Generace 0* (*Modular platform for autonomous chassis of specialised electric vehicles for the transport of cargo and equipment - Generation 0*) – excellent evaluation (the best level 1) of the output activities within the project 2018-2022 in the M17+ assessment in module M1; a member of the project team for the duration of the project (1/31)

List of publications

Monograph

[1] Mlýnek, J.: *Zabezpečení obchodních informací (Security of Business Information)*. Computer Press, Brno, February 2007, 154 pages, ISBN 978-80-251-1511-4, 1000 printed copies.

[2] Petrů, M., Mlýnek, J., Martinec, T., Ryvolová, M.: *Vybrané postupy konstruování kompozitu vyztuženého dlouhými vlákny* (*Selected methods of construction of long fiber reinforced composite*). 2019, Technical University of Liberec, 195pages, ISBN: 978-80-7494-477-2.

Collective Monograph

[3] Team of authors: *Ohřevy radiací, teorie a průmyslová praxe* (Heating by radiation, the theory and industrial practice), Technical University of Liberec, Liberec, July 2012, 162 pages, ISBN 978-80-7372-884-7.

Editor of monograph and co-author of chapters:

Mlýnek, J.: *Popis úlohy vedení tepla ve skořeponové formě* (Description of the heat conduction problem in the shell mould), pp. 111-112.

Mlýnek, J., Srb, R.: *Model intenzity záření ve 3D prostoru* (Intensity radiation model in 3D space), pp. 112-128.

Mlýnek, J., Srb, R.: *Optimalizace pole intenzity záření prostřednictvím genetických algoritmů* (Optimizing radiation field intensity by genetic algorithms), pp. 133-149.

[4] Team of authors: *Recent Trends in Fibrous Material Science*. Technical University of Liberec, Faculty of Textile Engineering, Liberec, September 2019, Editors: Mishra, R., Militky, J., Reviewer: Behera, B., K., ISBN: 978-80-7494-493-2.

co-author of chapter:

Mlýnek, J., Petrů, M., Martinec, T.*: Mathematical Modelling and Calculation of Suitable Robot Trajectory in Composite Frame Manufacturing*, pp. 183-210.

Papers in reviewed journals

[5] Mlýnek, J.,Koloor, S., S., R., Ryvolová, M., Dickhut, T.: *Robotic filament winding of advanced composite frames with complex geometrical shapes*. Journal of Engineered Fibers and Fabrics. 2025, Vol. 20, 1-18, 18 pages, DOI: 10.1177/15589250241313157, https://journals.sagepub.com/doi/10.1177/15589250241313157, Open Access

[6] Mlýnek, J., Koloor, S., S., R., Knobloch, R.: *Optimal Roving Winding on Toroidal Parts of Composite Frames*. Polymers, 2023, 15(15), 3227, 22 pages, DOI: 10.3390/polym15153227, https://www.mdpi.com/2073-4360/15/15/3227, Open Access

[7] Mlýnek, J., Petrů, R., Ryvolová, M., Koloor, S., S., R.: *Winding optimization of composite frame by dry fiber rovings*. Journal of Industrial Textiles. Volume 52 (1-26), 2022, 26 pages, DOI: 10.1177/15280837221114639, https://doi.org/10.1177/15280837221114639 , Open Access

[8] Knobloch, R., Mlýnek, J.: Differential EvolutionAlgorithm in Models of Technical Optimization. AKWI , (journal, which deals with technical applications and concepts of business information technologies), No. 14 (2021), Technical University of Applied Sciences Wildau, Wildau, Germany, ISSN: 2296-4592, https://www.ojs-hslu.ch/ This article was chosen for publication as one of the best conference articles of the 35th European Conference on Modelling and Simulation (ECMS), Germany, 2021.

[9] Mlýnek, J., Koloor, S., S., R., Martinec, T., Petrů, M.: Fabrication of High-Quality Straight-Line Polymer Composite Frame with Different Radius Parts Using Fiber Winding Process. J. Polymers, Volume 13(4), 497, 2021, 18 pages, https://doi.org/10.3390/polym13040497 , Open Access

[10] Knobloch, R., Mlýnek, J.*: Probabilistic Analysis of the Convergence of the Differential Evolution Algorithm*. J. Neural Network World, Volume 30 (2020), pp. 249-263, DOI: 10.14311/NNW.2020.30.017, http://nnw.cz/obsahy20.html

[11] Mlýnek, J., Petrů, M., Martinec, T., Koloor, S., S., R.: *Fabrication of High-Quality Polymer Composite Frame by a New Method of Fiber Winding Process*. J. Polymers, Volume 12(5), 1037,2020, 30 pages, https://doi.org/10.3390/polym12051037, https://www.mdpi.com/2073-4360/12/5/1037, Open Access

[12] Mlýnek, J., Knobloch, R.: *Model of Shell Metal Mould Heating in the Automotive Industry*. Applications of Mathematics, Volume 63 (2018), No. 2, 111-124. DOI 10.21136/AM.2018.0086-17.

[13] Petrů, M., Mlýnek, J., Martinec T.: *Numerical Modelling for Optimization of Fibres Winding Process of Manufacturing Technology for the Non-Circular Aerospace Frames*. Manufacturing Technology (Journal for science, research and production), Volume 18 (2018), No. 1, pp. 90-98, DOI: 10.21062/ujep/59.2018/a/1213-2489/MT/18/1/90

[14] Knobloch, R., Mlýnek, J., Srb, R.: *The Classic Differential Evolution Algorithm and Its Convergence Properties.* Applications of Mathematics, Volume 62 (2017), No. 2, 197-208. DOI: 10.21136/AM.2017.027-16.

[15] Petrů, M., Mlýnek, J., Martinec, T., Bronček, J.: *Mathematical modelling of fibre winding process for composite frames*. Komunikacie (Journal of electrical and electronic engineering, University of Zilina, Slovakia), Volume 18, Issue 4, 2016, 103-111.

[16] Petrů, M., Martinec, T., Mlýnek, J.: *Numerical Model Description of Fibres Winding Process for New Technology of Winding Fibers on the Frames*. Manufacturing Technology (Journal for science, research and production), Volume 16 (2016), No. 4, pp. 778-785, ISSN 1213-2489.

[17] Martinec, T., Mlýnek, J., Petrů, M.: *Calculation of the robot trajectory for the optimum directional orientation of fibre placement in the manufacture of composite profile frames*. Robotics and Computer-Integrated Manufacturing, Volume 25 (2015), pp. 42-54. ISSN: 0736-5845, DOI: 10.1016/j.rcim.2015.02.004, https://www.sciencedirect.com/science/article/pii/S0736584515000228

[18] Mlýnek, J., Srb, R.: *The Process of Aluminium Moulds Warming in the Car Industry*. Journal of Automation, Mobile Robotics & Intelligent Systems (JAMRIS), Volume 6, No. (2012), Warsaw, Poland, pp. 47-50, ISSN 1897-8649.

[19] Mlýnek, J.: *Informační bezpečnost (Information Security)*. Pokroky mat. fyz. a astronom. 51 (2006), No. 2, 89-98. CS-ISSN-0032-2423.

[20] Křížek, M., Mlýnek, J.: *On the Preconditioned Biconjugate Gradients for Solution of Linear Complex Equations Arising from Finite Elements*. Banach Center publ. 29 (1994), pp.195 – 205.

[21] Preiningerová, V., Mlýnek, J., Kahoun, V.: *Výpočet neustálených tepelných dějů v olejových transformátorech metodou náhradní tepelné sítě (Calculation of Non-stationary Heat Processes in Oil Transformers by Use of an Artificial Heat Network Method)*. Elektrotechnický obzor, 80 (1991), 199 – 209.

[22] Mlýnek, J.: *Jaké místo zaujímají numerické metody v současné vědě? (What Place Do Numerical Methods Occupy in Contemporary Science?)* Elektrotechnický obzor, 79 (1990), pp. 167 – 168.

Lecture notes

[23] Mlýnek, J.: *Zabezpečení obchodních informací (Security of Business Information)*. Technical University of Liberec, 2005, 150 pages, electronic form.

[24] Mlýnek, J.: *Kryptografie a bezpečnost informací (Cryptography and Information Security)*. Technical University of Liberec, 2010, 160 pages, electronic form.

[25] Mlýnek, J.: *Informace a krizový management (Information and Crisis Management)*. Technical University of Liberec, 2010, 150 pages, electronic form.

Papers in reviewed proceedings

[26] Knobloch, R., Mlýnek, J.: *Global Convergence Limits of Differential Evolution Algorithm*. 38th ECMS International Conference on Modelling and Simulation, ECMS 2024, Cracow University of Technology, Cracow, Poland, 4-7 June 2024. ISBN 978-3-937436-83-8

[27] Knobloch, R., Mlýnek, J.: *Perfect Bit Fields and Their Technical Application*. Proc. of the 20th International Conference on Mechatronics - Mechatronika (ME), 5 pages, 7th-9th December 2022, University of West Bohemia, Pilsen, Czech Republic, DOI: 10.1109/ME54704.2022.9983063

[28] Mlýnek, J., Petrů, M., Knobloch, R.: *Modelling of Composite Reinforcements in Agricultural Equipment*. Proc. of the 8th International Conference on Trends in Agricultural Engineering 2022 (TAE 2022), Herák, D.(Ed.), pp. 284 – 289, 20th – 23th September, 2022, Faculty of Engineering, Czech University of Life Sciences Prague, Prague, Czech Republic. ISBN: 978-80-213-3207-2

[29] Knobloch, R., Mlýnek, J.: *Differential Evolution Algorithm in Models of Technical Optimization.* Proc. of the 35th European Conference on Modelling and Simulation (ECMS), pp. 179-184, May 31-June 1 2021, Web-organized conference, Germany, www.scs-europe.net/dlib/2021/2021-0179.htm, DOI: https://doi.org/10.7148/2021-0179.

[30] Mlýnek, J., Petrů, M., Martinec, T., Knobloch, R.: *Production of Polymer Frame Composites Using Industrial Robots.* Proceedings of the 2020 19th International Conference on Mechatronics – Mechatronika (ME), Maga, D., Hajek, J. (Eds.), Czech Technical University in Prague, Faculty of Electrical Engineering, Technicka 2, CZ-16627 Praha, Czech Republic, December 2020, pp. 275-279, ISBN: 978-1-7281-5600-2.

[31] Mlýnek, J., Petrů, M., Martinec, T.: *Design of Composite Frames Used in Agricultural Machinery*. Proceedings of the 7th International Conference on Trends in Agricultural Engineering 2019, Herák, D. (Ed.), Czech University of Life Sciences Prague, Prague, September 2019, pp. 396-401, ISBN: 978-80-213-2953-9.

[32] Mlýnek, J., Petrů, M., Martinec, T.: *Optimization of Industrial Robot Trajectory in Composite Production*. Proceedings of the 18th International Conference Mechatronics-Mechatronika 2018, Maga, D., Stefek, A., Brezina, T. (Eds.), Faculty of Mechanical Engineering, Brno University of Technology, December 2018, pp. 270-275, ISBN: 978-80-214-5543-6 (CD).

[33] Mlýnek, J., Knobloch, R.: *The Model of Non-stationary Heat Conduction in a Metal Mould*. Proceedings of the 12th International Conference Mechatronics 2017, Recent Technological and Scientific Advances, Jablonski, R., Brezina, T. (Eds.), Faculty of

Mechanical Engineering, Brno University of Technology, Brno, Czech Republic, September 2017, Springer, pp. 364-371, ISBN 978-3-319-65959-6, DOI: 10.1007/978-3-319-65960-2.

[34] Mlýnek, J., Martinec, T., Petrů, M.*: Calculation of industrial robot trajectory in frame composite production*. Proceedings of the conference Programs and Algorithms of Numerical Mathematics 18, Institute of Mathematics of Academy of Science, Janov nad Nisou, Prague 2017, pp. 81-88. ISBN 978-80-85823-67-7.

[35] Knobloch, R., Mlýnek, J., Srb, *R.: Convergence Rate of the Modified Differential Evolution Algorithm*. Proceedings of the 43rd International Conference Applications of Mathematics in Engineering and Economics 2017, published by the American Institute of Physics, Conf. Proc 1910, 030005-1-030005-8, https://doi.org/10.1063/1.5013964, published by AIP Publishing. 978-0-7354-1602-4.

[36] Knobloch, R., Mlýnek, J., Srb, R.: *Improving convergence properties of a differential evolution algorithm*. Proceedings of the 42th International Conference Applications of Mathematics in Engineering and Economics (AMEE), Technical University Sofia, Sozopol, Bulgaria, 8-13 June 2016. ISBN: 978-0-7354-1337-5, DOI: 10.1063/1.4968451.

[37] Petrů, M., Mlýnek, J., Martinec, T.: *Numerical model describing optimization of fibres winding process on open and closed frame*. Proc. Of the 5th Internat. Conf. on Mathematical Modeling in Physical Sciences, Athens, Greece, May 2016, Journal of Physics: Conference Series, Volume 738, Issue 1, 5 September 2016, Article number 012094, ISSN: 17426588, DOI: 10.1088/1742-6596/738/1/012094.

[38] Martinec, T., Mlýnek, J., Petrů, M.: *Composite production and industrial robot trajectory calculation*. Proc. of the 12th Internat. Conf. on the theory of Machines and Mechanisms, September 2016, Liberec, Czech Republic, Mechanisms and Machine Science, Vol. 44, 2017, pp. 271-276. ISBN: 978-331944086-6, DOI: 10.1007/978-3-319-44087-3_35.

[39] Mlýnek, J., Knobloch, R., Srb, R.: *Optimization of a Heat Radiation Intensity and Temperature Field on the Mould Surface*. Proc. of the 30th European Conference on Modelling and Simulation, pp. 425-431, May 31-June 03 2016, Regensburg, Germany, ISBN 987-0-9932440-2-5, DOI: 10.7148/2016-0425.

[40] Mlýnek, J., Knobloch, R., Srb, R.: *Temperature Field Optimization on the Mould Surface*. Proceedings of the 11th International Conference Mechatronics 2015, Advanced Mechatronics Solutions, Jablonski, R., Brezina, T. (Eds.), Faculty of Mechatronics, Warsaw University of Technology, Warsaw, September 2015, Springer, pp. 225-230, ISBN 978-3-319-23921-7, DOI: 10.1007/978-3-319-23923-1_34.

[41] Mlýnek, J., Knobloch, R., Srb, R.: *Use of differential evolution algorithm for the optimization of the heat radiation intensity*. Proceedings of the international Conference Applications of Mathematics 2015, Institute of Mathematics, Czech Academy of Science, Prague, 18-21 November 2015, pp. 148-157. ISBN: 978-80-85823-65-3.

[42] Mlýnek, J., Knobloch, R., Srb, R.: *Mathematical Model of the Metal Mould Surface Temperature Optimization*. Proceedings of the 41th International Conference Applications

of Mathematics in Engineering and Economics (AMEE), Technical University Sofia, Sozopol, Bulgaria, 8-13 June 2015. ISBN: 978-0-7354-1337-5, DOI: 10.1063/1.4936696.

[43] Mlýnek, J., Srb, R., Knobloch, R.: *The use of graphics card and nVidiaCUDA architecture in the optimization of the heat radiation intensity*. Proceedings of the conference Programs and Algorithms of Numerical Mathematics 17, , Institute of Mathematics of Academy of Science, Dolní Maxov, Prague 2015, pp. 150-155. ISBN 978-80-85823-64-6.

[44] Mlýnek, J., Martinec, T.: *Mathematical Model of Composite Manufacture and Calculation of Robot Trajectory*. Proc. of the 16th Internat. Conf. Mechatronics – Mechatronika 2014, Faculty of Mechanical Engineering, Brno University of Technology, Brno, Czech Republic, 3-5 December, 2014, pp. 345-351, ISBN 978-80-214-4817-9.

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