

2023 PROFESSIONAL ACTIVITIES

BUT FCE INSTITUTE OF MATHEMATICS AND DESCRIPTIVE GEOMETRY

Staff

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Assistants: Matouš Cabalka, Anna Derevianko, Marie Hartmanová

Technical and economic staff: Zdeňka Dvorská, Alena Vlčková

Papers published in journals

- [1] BEREZOVSKI, V.; RÝPAROVÁ, L.; CHEREVKO, Y. [Canonical \$F\$ -planar mappings of spaces with affine connection onto \$m\$ -symmetric spaces](#). *Mathematics* 11 (2023), 1246 / 1–9. ISSN 2227-7390. [WoS AIS \(2022\) Q4](#).
- [2] DIBLÍK, J.; GALEWSKI, M.; RĂDULESCU, V.; ŠMARDA, Z. [Multiplicity of solutions for nonlinear coercive problems](#). *Journal of Mathematical Analysis and Application* 528 (2023), 1–13. ISSN 0022-247X. [WoS AIS \(2022\) Q2](#).
- [3] DIBLÍK, J.; KOROBKO, E. [Asymptotic behavior of solutions of a second-order nonlinear discrete equation of Emden-Fowler type](#). *Advances in Nonlinear Analysis* 12 (2023), 1–23. ISSN 2191-950X. [WoS AIS \(2022\) Q1](#).
- [4] DIBLÍK, J.; HALFAROVÁ, H.; ŠAFAŘÍK, J. [Two-parameters formulas for general solution to planar weakly delayed linear discrete systems with multiple delays, equivalent non-delayed systems, and conditional stability](#). *Applied Mathematics and Computation* 459 (2023), 128270 / 1–14. ISSN 0096-3003. [WoS AIS \(2022\) Q2](#).
- [5] FOREJT, M.; POKOROVÁ, K.; UHER, M.; NOVÁK, J.; ČERMÁKOVÁ, E. [Changes in segmental impedances and selected body composition parameters assessed by multi-frequency bioimpedance analysis after fluid consumption in healthy young population](#). *International Journal of Medical Sciences* 20 (2023), 1783–1790. ISSN 1449-1907. [WoS AIS \(2022\) Q2](#).
- [6] CHRASTINOVÁ, V.; TRYHUK, V. [On the Lagrange variational problem](#). *Annales Polonici Mathematici* 130 (2023), 149–180. ISSN 0066-2216. [WoS AIS \(2022\) Q4](#).

- [7] KOZÁK, V.; VALA, J. [Modelling of crack formation and growth using FEM for selected structural materials at static loading](#). *WSEAS Transactions on Applied and Theoretical Mechanics* 18 (2023), 243–254. ISSN 2224-3429. [Scopus \(2022\)](#).
- [8] PEŠKA, P.; MIKEŠ, J.; VÍTKOVÁ, L.; CHEPURNA, O. [On general solutions of equidistant vector fields on two-dimensional \(pseudo-\)Riemannian spaces](#). *Filomat* 37 (2023), 8569–8574. ISSN 0354-5180. [WoS AIS \(2022\) Q4](#).
- [9] RÝPAROVÁ, L.; GUSEVA, N.; SHERKUZIIYEV, M.; SHERKUZIIYEVA, N. [On the rigidity and analytical rigidity of two-connected regular surfaces of revolution for a given direction of displacement of edge points](#). *Filomat* 37 (2023), 8561–8567. 2023, roč. 37, č. 25, s. 8561-8567. ISSN 0354-5180. [WoS AIS \(2022\) Q4](#).
- [10] RÝPAROVÁ, L.; HINTERLEITNER, I.; STEPANOV, S.; TSYGANOK, I. [Infinitesimal transformations of Riemannian manifolds – the geometric dynamics point of view](#). *Mathematics* 11 (2023), 1114 /,1–13. ISSN 2227-7390. [WoS AIS \(2022\) Q4](#).
- [11] VALA, J. [Numerical approaches to the modelling of quasi-brittle crack propagation](#). *Archivum Mathematicum* 59 (2023), 295–303. ISSN 0044-8753. [WoS AIS \(2022\) Q2/ESCI](#).
- [12] VALA, J.; JAROŠOVÁ, P. [On a derivative-free optimization approach to some problems of civil engineering](#). *WSEAS Transactions on Mathematics* 22 (2023), 641–651. ISSN 1109-2769. [Scopus \(2022\)](#).

Články v konferenčních sbornících

- [1] DIBLÍK, J.; ŠAFAŘÍK, J.; HALFAROVÁ, H. [Conditional stability of planar weakly delayed linear discrete systems with constant coefficients and a single delay](#). *19th International Conference of Numerical Analysis and Applied Mathematics (ICNAAM) in Rhodes (2021)*, *AIP Conference Proceedings* 2849 (2023), 370002 / 1–4. ISBN 978-0-7354-4182-8, ISSN 094-204X.
- [2] HOLEŠOVSKÝ, J.; FUSEK, M. [Statistical inference for the local dependence condition in extreme value estimation](#). *16th International Conference of the ERCIM Working Group on Computational and Methodological Statistics in Berlin (2023)*, Book of Abstracts, EcoSta Econometrics and Statistics, Berlin 2023, 102. ISBN 978-9925-7812-7-0.
- [3] KOTRECHKO, S.; KOZÁK, V.; ZATSARNA, O.; ZIMINA, G.; STETSENKO, N.; DLOUHÝ, I. [Micromechanical aspects of the effect of temperature and local plastic strain magnitude on the fracture toughness of ferrite steels](#). *10th Materials Structure and Micromechanics of Fracture (MSMF) in Brno (2022)*, *Procedia Structural Integrity* 43 (2023), 228–233. ISBN 978-1-7138-6907-8, ISSN 2452-3216.
- [4] KOZÁK, V. [Some peculiarities in crack modelling under static and dynamic loading](#). *19th International Conference of Numerical Analysis and Applied Mathematics (ICNAAM) in Rhodes (2021)*, *AIP Conference Proceedings* 2849 (2023), 370005 / 1–4. ISBN 978-0-7354-4182-8, ISSN 094-204X.
- [5] KOZÁK, V.; VALA, J. [Crack growth modelling in cementitious composites using XFEM](#). *10th Materials Structure and Micromechanics of Fracture (MSMF) in Brno (2022)*, *Procedia Structural Integrity* 43 (2023), 47-52. ISBN 978-1-7138-6907-8, ISSN 2452-3216.

- [6] KOZÁK, V.; VALA, J. [Cohesive zone modelling and the fracture process of cement-based composites](#). *21st International Conference Silicate Binders (ICBM)* in Brno (2022), *Solid State Phenomena* 35 (2023), 97–102. ISBN 978-3-0364-0202-4, ISSN 1662-9779.
- [7] MORÁVKOVÁ, B.; DIBLÍK, J. [Solutions of linear discrete systems with a single delay and impulses](#). *19th International Conference of Numerical Analysis and Applied Mathematics (ICNAAM)* in Rhodes (2021), *AIP Conference Proceedings* 2849 (2023), 370003 / 1–4. ISBN 978-0-7354-4182-8, ISSN 094-204X.
- [8] NĚMEC, I.; VALA, J.; ŠTEKBAUER, H.; JEDLIČKA, M.; BURKART, D. [New methods in collision of bodies analysis](#). *21st Programs and Algorithms of Numerical Mathematics (PANM)* in Jablonec nad Nisou (2022), Proceedings of Seminar, Institute of Mathematics CAS, Prague 2023, 133–148. ISBN 978-80-85823-73-8.
- [9] VALA, J. [On the computational heat transfer evaluation in buildings with controlled temperature](#). In Thermophysics 2022. AIP Conference Proceedings. Melville (USA): American Institute of Physics, 2023. p. 020024-1 (020024-6 p.) *27th Thermophysics* in Dalešice (2022), *AIP Conference Proceedings* 2894 (2023), 020024 / 1–6. ISBN: 978-0-7354-4655-7, ISSN 1551-7616.
- [10] VALA, J.; JAROŠOVÁ, P. [On computational stability of explicit schemes in nonlinear engineering dynamics](#). *19th International Conference of Numerical Analysis and Applied Mathematics (ICNAAM)* in Rhodes (2021), *AIP Conference Proceedings* 2849 (2023), 370004 / 1–4. ISBN 978-0-7354-4182-8, ISSN 094-204X.
- [11] VALA, J.; KOZÁK, V. [On a computational stress-based non-local damage model for quasi-brittle composites](#). *10th Materials Structure and Micromechanics of Fracture (MSMF)* in Brno (2022), *Procedia Structural Integrity* 43 (2023), 59–64. ISBN 978-1-7138-6907-8, ISSN 2452-3216.
- [12] VALA, J.; REK, V. [On a computational approach to multiple contacts / impacts of elastic bodies](#). *21st Programs and Algorithms of Numerical Mathematics (PANM)* in Jablonec nad Nisou (2022), Proceedings of Seminar, Institute of Mathematics CAS, Prague 2023, 269–280. ISBN 978-80-85823-73-8.

Chapters in books

- [1] TRCALA, M.; NĚMEC, I.; GÁLOVÁ, A. [On the nonlinear transient analysis of structures](#). In: *Earthquakes – Recent Advances, New Perspectives and Applications* (SALAZAR, W., ed.). Intech, Karnal (India), 2023, Chap. 9, 163–182. ISBN 978-1-83768-183-9.

Textbooks

- [1] DIBLÍK, J.; RŮŽIČKOVÁ, M.; SCHMEIDEL, E. [Równania różniczkowe zwyczajne II. Stabilność rozwiązań](#). Wydawnictwo Uniwersytetu w Białymstoku, 2023, 162 pp. ISBN 978-83-7431-755-9.
- [2] HOLEŠOVSKÝ, J.; PŘIBYL, O. [Analýza dat](#), online textbook for an *Environmental Engineering* bachelor course, BUT FCE, 2023, 196 pp.
- [3] VALA, J. [Numerická matematika](#), online textbook for a *Safety Engineering in Construction* course, FAST VUT v Brně, 2023, 33 pp.

Doctoral study

[1] M. Hartmanová: supervisor J. Diblík (BUT FEEC), continues in 2024.

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