2022 Professional Activities
BUT FCE Institute of Mathematics and Descriptive Geometry

Staf

Head: Jan Holešovský

Professors: Josef Diblík, Jiří Vala

Associate professors: Irena Hinterleitner, Vladislav Kozák

Assistant professors: Darina Brothánková, Jana Bulantová, Hana Halfarová, Jan Holešovský, Veronika Chrastinová, Eva Jansová, Helena Koutková, Karel Lepka, Kristýna Mencáková, Karel Mikulášek, Blanka Morávková, Radko Odehnal, Šárka Pechancová, Kateřina Pokorová, Květoslava Prudilová, Oto Přibyl, Petra Rozehnalová, Lenka Rýparová, Rudolf Schwarz, Jana Slaběňáková, Jan Šafařík, Hana Šafářová, Pavel Špaček, Miroslav Trcala, Jan Vondra, Lucie Zrůstová

Assistants: Jana Bartoňová, Matouš Cabalka, Anna Derevianko, Marie Hartmanová, Matouš Trnka

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Technical and economic staff: Zdeňka Dvorská, Alena Vlčková

Papers published in journals

[1] BAŠTINEC, J.; DIBLÍK, J.; PINELAS, S.; VALA, J. Determining the initial data generating solutions with prescribed behaviour of a triangular system of linear discrete equations. *Applied Mathematics and Computations* 425 (2022), 126533 / 1–18. ISSN 0096-3003. IF(2021) 4,397.

[2] BEREZOVSKI, V.; CHEREVKO, Y.; HINTERLEITNER, I.; MIKEŠ, J. Canonical almost geodesic mappings of the first type onto generalized Ricci symmetric spaces. *Filomat* 36/4 (2022), 1089–1097. ISSN 2406-0933. IF(2021) 0,988.

[3] ČAMPULOVÁ, M.; ČAMPULA, R.; HOLEŠOVSKÝ, J. An R package for identification of outliers in environmental time series data. *Environmental Modelling and Software* 155/1 (2022), 105435 / 1–18. ISSN 1364-8152. IF(2021) 5,471.

[4] DIBLÍK, J.; GALEWSKI, M. Existence of solutions in cones to delayed higher-order differential equations. *Applied Mathematical Letters* 130 (2022), 108014 / 1–7. ISSN 0893-9659. IF(2021) 4,294.

[5] DIBLÍK, J.; VÁŽANOVÁ, G. Lower and upper estimates of semi-global and global solutions to mixed-type functional differential equations. *Advances in Nonlinear Analysis* 11/1 (2022), 757–784. ISSN 2191-950X. IF(2021) 4,544.

[6] HOLEŠOVSKÝ, J.; FUSEK, M. Improved interexceedance-times-based estimator of the extremal index using truncated distribution. *Extremes* 25/4 (2022), 695–720. ISSN 1386-1999. IF(2021) 1,318.

[7] MIKEŠ, J.; GUSEVA, N.; PEŠKA, P.; RÝPAROVÁ, L. Almost geodesic mappings and projections of the sphere. *Mathematical Notes* 111/3-4 (2022), 498–502. ISSN 1573-8876. IF(2021) 0,650.

[8] MIKEŠ, J.; RÝPAROVÁ, L.; STEPANOV, S.; TSYGANOK, I. On the geometry in the large of Einstein-like manifolds. *MDPI Mathematics* 10 (2022), 2208 / 1–10. ISSN 2227-7390. IF(2021) 2,592.

[9] ŠTEKBAUER, H.; NĚMEC, I.; LANG, R.; BURKART, D.; VALA, J. On a new computational algorithm for impacts of elastic bodies. *Applications of Mathematics* 67/6 (2022), 775–804. ISSN 0862-7940. IF(2021) 0,674.

[10] VALA, J.; KOZÁK, V.; JEDLIČKA, M. On some peculiarities of numerical modelling of cement-based composites. *Solid State Phenomena* 338 (2022), 135–140. ISSN 1662-9779. ISBN 978-0-7354-4182-8.

Papers puiblished in conference proceedings

[1] HALFAROVÁ, H.; DIBLÍK, J.; ŠAFAŘÍK, J. General solution to a weakly delayed planar linear discrete system, the case of real different eigenvalues of the matrix of nondelayed terms. *19th ICNAAM (International Conference of Numerical Analysis and Applied Mathematics)* in Rhodes (2020), *AIP Conference Proceedings* 2425 (2022), 270009 / 1–4. ISBN 978-0-7354-4182-8. ISSN 094-204X.

[2] KOZÁK, V.; VALA, J. Prediction of fracture behaviour of structural steels using temperature-dependent local approach. *26th International Meeting of Thermophysics* in Dalešice (2021). *AIP Conference Proceedings* 2488 (2022), 200007 / 1–6. ISBN 978-0-7354-4365-5. ISSN 094-204X.

[3] ŠAFAŘÍK, J. Počátky kartografie – od nejstarších památek po středověk. *Proceedings of the Czech - Slovak Conference on Geometry and Graphics* in Olomouc (2022), 155–162. Slovak Technical University in Bratislava, Faculty of Chemical and Food Technology, 2022. ISBN 978-80-8208-092-9.

[4] ŠAFAŘÍK, J.; DIBLÍK, J.; HALFAROVÁ, H. Solution of weakly delayed linear two-dimensional discrete systems with constant coefficients and multiple delays. *19th ICNAAM (International Conference of Numerical Analysis and Applied Mathematics)* in Rhodes (2020), *AIP Conference Proceedings* 2425 (2022), 270010 / 1–4. ISBN 978-0-7354-4182-8. ISSN 094-204X.

[5] VALA, J. On direct and inverse diffusion problems useful in computational disease spread modelling. *19th ICNAAM (International Conference of Numerical Analysis and Applied Mathematics)* in Rhodes (2020), *AIP Conference Proceedings* 2425 (2022), 270007 / 1–4. ISBN 978-0-7354-4182-8. ISSN 094-204X.

[6] VALA, J. The Finite Element Method – 55 years of mathematical theory. *Proceedings of MITAV (Mathematics, Information Technologies and Applied Sciences)* in Brno (2022), 89–105. University of Defence in Brno, 2022. ISBN 978-80-7582-185.

Textbooks

[1] BULANTOVÁ, J.; MENCÁKOVÁ, K.; MORÁVKOVÁ, B.; RÝPAROVÁ, L.; ŠAFAŘÍK, J.; ZRŮSTOVÁ, L. Sbírka řešených příkladů z konstruktivní geometrie. Elektronická studijní opora, FAST VUT, Brno, 2022.

Doctoral study

[1] M. Hartmanová: supervisor J. Diblík (BUT FEEC), continues in 2023.

[2] O. Přibyl: supervisor J. Raclavský (BUT FCE), continues in 2023.

Research projects

[1] *Formulating and implementig an energetic method of te numeriv modelling of body impacts while rtespecting different forms of energy dissipation*, standard project of specific university research FAST-S-22-7867, solution provider J. Vala.

[2] *Study of modern and developing BU Brno technology*, project of OP VVV CZ.02.2.69/0.0/0.0/18_056/ 0013325, from MAT V. Kozák, L. Zrůstová.

Ing. Jan Holešovský, Ph.D.,
head of MAT institute