

# Report on the evaluation of the publications in 2023

## Charles University, Faculty of Mathematics and Physics, School of Mathematics

As in the previous 11 years, members of the Council of the project Cooperatio – Mathematics<sup>1</sup> (successor to PRVOUK P47 and Progres Q49) have evaluated the publications published in 2023 by the members of the School of Mathematics, and decided on the rewards for the authors of the best of them. The decision-making process is described in more detail on the next page.

### Summary

The members of the Council had complete information on all publications kept in the OBD/RIV database with the year of publication 2023, for which at least one of the authors was a member of the School of Mathematics. There were the **280** publications, all having RIV status "accepted". In the most important category of original journal papers, we have recorded **242** of which **217** were published in journals with IF/AIS. More detailed information on publications in the main categories, including the history since 2012, can be found in the following table.

### Publications of the members of the School of Mathematics since 2012

year	journal with IF/AIS	journal without IF/AIS	journal total	book / monograph	chapter in monograph	conference proceeding	total
2012	139	41	180	1	10	69	271
2013	157	34	191	6	7	53	257
2014	147	25	172	3	6	53	234
2015	166	27	193	5	6	48	252
2016	152	23	175	2	2	39	218
2017	156	27	183	1	5	27	232
2018	164	28	192	2	18	34	246
2019	154	37	191	7	16	35	249
2020	189	29	218	7	14	38	277
2021	190	30	220	0	2	23	245
2022	191	17	208	2	0	4	214
<b>2023</b>	<b>217</b>	<b>25</b>	<b>242</b>	<b>3</b>	<b>3</b>	<b>32</b>	<b>280</b>

The following table shows the number of journal publications in D1, Q1, Q2, Q3 and Q4 quartiles according to AIS factor. Each journal has one AIS factor but the journal can belong to different quartiles according to the journal groups, e.g., "Q1 - Mathematics" & "Q2 - Mathematics, Applied". In this case, the best group is taken into account. The group Q1 includes also D1.

year	D1	Q1	Q2	Q3	Q4	total
2022	24	67	72	38	14	191
2023	25	74	78	44	21	217

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<sup>1</sup><https://www.mff.cuni.cz/en/math/research/cooperatio>

## A description of the process of evaluation

Each member of the Council received a complete list of all publications including the link to the electronic version of publication ordered with the descending order of AIS journals and indication to which group D1, Q1, Q2, Q3, Q4 they belong.

In the first evaluation round, each member of the Council proposed best publications, typically in his area of expertise. It was possible to give the marks “A” or “B” in order to express the preference. The list of 67 publications having at least one mark had arisen.

Then coordinator prepared table with the indicated marks and proposed an evaluation of the publications before the meeting of the council which hold on May 30, 2024. Then this proposal has been discussed and some modifications have been carried out. Some minor modification were carried out after the meeting and the final list of the awarded publications has been approved per-rolam during June 5-7, 2024.

Members of the Cooperatio Council decided in advance (as in previous years) that they themselves cannot be rewarded for publications. However, co-authors of publications who are not members of the Cooperatio Council may be rewarded.

## Selected publications

(A) List of **17 publications** in the **Elite** category, whose (co) authors are members of the School of Mathematics, and who affiliated their publication to MFF UK (the order of publications is random). Only the highlighted authors could be rewarded (i.e. they have an employment relationship with the MFF and at the same time are not members of the Cooperatio Council; alternatively they are students of the MFF).

- **CARSON, Erin Claire**, KHAN, Noaman. Mixed precision iterative refinement with sparse approximate inverse preconditioning. SIAM Journal of Scientific Computing 45(3), 2023 [link](#)
- **DOLEŽALOVÁ, Anna**, HENCL, Stanislav, MALÝ, Jan. Weak Limit of Homeomorphisms in  $W_{1,n-1}$  and (INV) Condition. Archive for Rational Mechanics and Analysis 247(5):80, 2023; [link](#)
- MUSIL, Vít; **PICK, Luboš**, TAKÁČ, Jakub. Optimality problems in Orlicz spaces. Advances in Mathematics, 2023(432):109273, 2023; [link](#)
- HALLIN, Marc; **HLUBINKA, Daniel**, **HUDECOVÁ, Šárka**. Efficient Fully Distribution-Free Center-Outward Rank Tests for Multiple-Output Regression and MANOVA. Journal of the American Statistical Association 118(543), 2023; [link](#)
- SAORIN, Manuel; **ŠTOVÍČEK, Jan**, VIRILI, Simone. t-Structures on stable derivators and Grothendieck hearts. Advances in Mathematics 429(15 September, 2023):109139, 2023; [link](#)
- BEHRENS, Freya; **HUDCOVÁ, Barbora**, ZDEBOROVÁ, Lenka. The Backtracking Dynamical Cavity Method. Physical Review X 13(21 August, 2023), 2023; [link](#)
- GIROTTI, Manuela; GRAVA, Tamara; JENKINS, Robert; MCLAUGHLIN, Ken T-R; **MINAKOV, Oleksandr**. Soliton versus the gas: Fredholm determinants, analysis, and the rapid oscillations behind the kinetic equation. Communications on pure and applied mathematics 76(11):1, 2023; [link](#)
- **KAMPSCHULTE, Malte Laurens**, **SCHWARZACHER, Sebastian**, SPERONE MARTÍ, **Gianmarco Silvio**. Unrestricted deformations of thin elastic structures interacting with fluids. Journal des Mathématiques Pures et Appliquées 173(1), 2023; [link](#)
- BULÍČEK, Miroslav, HRUŠKA, David; **MÁLEK, Josef**. On evolutionary problems with a-priori bounded gradients. Calculus of Variations and Partial Differential Equations 62(7):188, 2023; [link](#)
- CLAEYS, T.; KRASOVSKY, I.; **MINAKOV, Oleksandr**. Weak and Strong Confinement in the Freud Random Matrix Ensemble and Gap Probabilities. Communications in Mathematical Physics 402(1), 2023; [link](#)
- BORSTEN, Leron; **JURČO, Branislav**, KIM, Hyungrok; MACRELLI, Tommaso; SAEMANN, Christian; WOLF, Martin. Kinematic Lie Algebras from Twistor Spaces. Physical Review Letters 131(4): 041603, 2023; [link](#)
- SAORIN, Manuel; **ŠTOVÍČEK, Jan**. t-Structures with Grothendieck hearts via functor categories. Selecta Mathematica-New Series 29(5):77, 2023; [link](#)
- **CÚTH, Marek**, DOUCHA, Michal; KURKA, Ondrej. Complexity of distances: Theory of generalized analytic equivalence relations. Journal of Mathematical Logic 23(1):2250014, 2023; [link](#)
- SCHMIDT, Bernd; **ZEMAN, Jiří**. A continuum model for brittle nanowires derived from an atomistic description by  $\Gamma$ -convergence. Calculus of Variations and Partial Differential Equations 62(9):243, 2023; [link](#)
- JIČÍNSKÝ, Michal; **PAVLÍKOVÁ, Markéta**, et all. Natural History of Nonsurgical Complete Atrio-ventricular Block in Children and Predictors of Pacemaker Implantation. JACC: Clinical Electrophysiology 9(8), 2023; [link](#)

- NEUMAN, Vít; PRŮHOVÁ, Štěpánka; **KULICH, Michal**, et al. Changes in the gut bacteriome upon gluten-free diet intervention do not mediate beta cell preservation. *Diabetologia* 66(1):241-246, 2023; [link](#)
- REZAEI-HAJIDEHI, Mohsen; **TŮMA, Karel**, STUPKIEWICZ, Stanisław. Indentation-induced martensitic transformation in SMAs: Insights from phase-field simulations. *International Journal of Mechanical Sciences* 245(245):108100, 2023; [link](#)

(B) List of **36 publications** in the **Rewarded** category, whose (co) authors are members of the School of Mathematics, and who affiliated their publication to MFF UK (the order of publications is random). Only the highlighted authors could be rewarded (i.e. they have an employment relationship with the MFF and at the same time are not members of the Cooperatio Council; alternatively they are students of the MFF).

- BIELČIKOVÁ, Zuzana; **PEŠTA, Michal**, et al. Mitochondrially targeted tamoxifen in patients with metastatic solid tumours: an open-label, phase I/Ib single-centre trial. *EClinicalMedicine* 57(March):101873, 2023; [link](#)
- GRAFAKOS, Loukas; HE, Danqing; **HONZÍK, Petr**, PARK, Bae Jun. Initial  $L^2 \times L^2$  bounds for multilinear operators. *Transactions of the American Mathematical Society* 376(5), 2023; [link](#)
- LANG, Jan, **MIHULA, Zdeněk**. Different degrees of non-compactness for optimal Sobolev embeddings. *Journal of Functional Analysis* 284(10):109880, 2023; [link](#)
- **KINCL, Ondřej**, **PAVELKA, Michal**. Globally time-reversible fluid simulations with smoothed particle hydrodynamics. *Computer Physics Communications*, 2023(108593), 2023; [link](#)
- **VAN BUGGENHOUT, Niel**. On generating Sobolev orthogonal polynomials. *Numerische Mathematik*, 2023(3-4), 2023; [link](#)
- **HNĚTYNKOVÁ, Iveta**, PLESINGER, Martin; ZAKOVA, Jana. Krylov subspace approach to core problems within multilinear approximation problems: a unifying framework. *SIAM Journal on Matrix Analysis and Applications* 44(1), 2023; [link](#)
- **SOUČEK, Ondřej**, BĚHOUNKOVÁ, Marie; SCHROEDER, Dustin M. M.; WOLFENBARGER, Natalie S. S.; KALOUSOVÁ, Klára; STEINBRUGGE, Gregor; SODERLUND, Krista M.. Radar Attenuation in Enceladus' Ice Shell: Obstacles and Opportunities for Constraining Shell Thickness, Chemistry, and Thermal Structure. *Journal of Geophysical Research. Planets* 128(2):e2022JE007626, 2023; [link](#)
- OSCHMANN, Florian; **POKORNÝ, Milan**. Homogenization of the unsteady compressible Navier-Stokes equations for adiabatic exponent  $\gamma > 3$ . *Journal of Differential Equations* 377, 2023; [link](#)
- **ROUBÍČEK, Tomáš**, STEFANELLI, Ullisse. Viscoelastodynamics of swelling porous solids at large strains by an Eulerian approach\*. *SIAM Journal on Mathematical Analysis* 55(4), 2023; [link](#)
- **BENEŠOVÁ, Barbora**, NECASOVA, Sarka; **SCHERZ, Jan Andreas**, SCHLOEMERKEMPER, Anja. Fluid-rigid body interaction in an incompressible electrically conducting fluid. *SIAM Journal on Mathematical Analysis* 55(2), 2023; [link](#)
- **DOLEŽALOVÁ, Anna**, KANGASNIEMI, Ilmari; ONNINEN, Jani. Mappings of generalized finite distortion and continuity. *Journal of the London Mathematical Society* 1(1), 2023; [link](#)
- JHA, Abhinav; JOHN, Volker; **KNOBLOCH, Petr**. Adaptive grids in the context of algebraic stabilizations for convection-diffusion-reaction equations. *SIAM Journal of Scientific Computing* 45(4), 2023; [link](#)

- CIANCHI, Andrea; MUSIL, Vit; **PICK, Luboš**. Optimal Sobolev embeddings for the Ornstein-Uhlenbeck operator. *Journal of Differential Equations* 359(1), 2023; [link](#)
- GREAVES, Gary R. W.; SYATRIADI, Jeven; **YATSYNA, Pavlo**. Equiangular lines in Euclidean spaces: dimensions 17 and 18. *Mathematics of Computation* 92(342), 2023; [link](#)
- **WILLIAMSON, Jordan**, ROITZHEIM, Constanze; ISHAK, Jocelyne. Levels of algebraicity in stable homotopy theories. *Journal of the London Mathematical Society* 108(2), 2023; [link](#)
- CHERUBINI, Giacomo, FAZZARI, Alessandro, GRANVILLE, Andrew; KALA, Vítězslav, **YATSYNA, Pavlo**. Consecutive Real Quadratic Fields with Large Class Numbers. *International Mathematics Research Notices*, 2023(14), 2023; [link](#)
- BREIT, Dominic; **SCHWARZACHER, Sebastian**. Navier-Stokes-Fourier fluids interacting with elastic shells. *Annali della Scuola Normale - Classe di Scienze* 24(2), 2023; [link](#)
- ALBERICO, Angela; CIANCHI, Andrea; **PICK, Luboš**, **SLAVÍKOVÁ, Lenka**. Boundedness of functions in fractional Orlicz-Sobolev spaces. *Nonlinear Analysis, Theory, Methods and Applications* 230(1): 113231, 2023; [link](#)
- GEBAUER, Roman; **KOMÁREK, Arnošt**, et al. Survival and Freedom From Reinterventions in Patients With Repaired Tetralogy of Fallot: Up to 42-Year Follow-Up of 917 Patients. *Journal of the American Heart Association* 12(20):e024771, 2023; [link](#)
- **KŘÍŽ, Pavel**, BERANEK, Jan; SPIWOK, Vojtech. Free Energy Differences from Molecular Simulations: Exact Confidence Intervals from Transition Counts. *Journal of Chemical Theory and Computation* 19(7), 2023; [link](#)
- **KOPA, Miloš**, **RUSÝ, Tomáš**. Robustness of stochastic programs with endogenous randomness via contamination. *European Journal of Operational Research* 305(3), 2023; [link](#)
- KRUTOV, Andrey; **O'BUACHALLA, Re**, STRUNG, Karen. Nichols Algebras and Quantum Principal Bundles. *International Mathematics Research Notices*, 2023(23):23, 2023; [link](#)
- **VACEK, Lukáš**, **KUČERA, Václav**. Godunov-Like Numerical Fluxes for Conservation Laws on Networks. *Journal of Scientific Computing* 97(3):70, 2023; [link](#)
- CAROTENUTO, Alessandro; **O'BUACHALLA, Re**. A Borel-Weil theorem for the quantum Grassmannians. *Documenta Mathematica* 28(28):28, 2023; [link](#)
- KALA, Vítězslav, **YATSYNA, Pavlo**. On Kitaoka's conjecture and lifting problem for universal quadratic forms. *Bulletin of the London Mathematical Society* 55(2), 2023; [link](#)
- **VÁVRA, Jan**, **KOMÁREK, Arnošt**. Classification based on multivariate mixed type longitudinal data with an application to the EU-SILC database. *Advances in Data Analysis and Classification* 17(12), 2023; [link](#)
- **ČOUPEK, Petr**, ONDREJÁT, Martin. Besov-Orlicz Path Regularity of Non-Gaussian Processes. *Potential Analysis* ():01.11.2022, 2023; [link](#)
- **KARAFIÁTOVÁ, Iva**, MØLLER, Jesper; **PAWLAS, Zbyněk**, **STANĚK, Jakub**, **SEITL, Filip**, **BENEŠ, Viktor**. Fitting the grain orientation distribution of a polycrystalline material conditioned on a Laguerre tessellation. *Spatial Statistics* 55(June, 2023):100747, 2023; [link](#)
- CIPOLLA, Stefano; **POZZA, Stefano**, REDIVO-ZAGLIA, Michela; **VAN BUGGENHOUT, Niel**. A Lanczos-type procedure for tensors. *Numerical Algorithms* 92(1), 2023; [link](#)
- **BRANDA, Martin**, HENRION, Rene; PIŠTĚK, Miroslav. Value at risk approach to producer's best response in an electricity market with uncertain demand. *Optimization* 72(11), 2023; [link](#)

- **HAVELKOVÁ, Eva, HNĚTYNKOVÁ, Iveta.** Iterative hybrid regularization for extremely noisy full models in single particle analysis. *Linear Algebra and Its Applications* 656(1), 2023; [link](#)
- **KALA, Vítězslav, TINKOVÁ, Magdaléna.** Universal Quadratic Forms, Small Norms, and Traces in Families of Number Fields. *International Mathematics Research Notices*, 2023(9), 2023; [link](#)
- **GENOVESE, Francesco, GONZALEZ, Julia Ramos.** A Derived Gabriel-Popescu Theorem for t-Structures via Derived Injectives. *International Mathematics Research Notices*, 2023(6), 2023; [link](#)
- **ŠAROCH, Jan.** Enochs' conjecture for small precovering classes of modules. *Israel Journal of Mathematics* 255(1), 2023; [link](#)
- **KRÁSENSKÝ, Jakub, YATSYNA, Pavlo.** On quadratic Waring's problem in totally real number fields. *Proceedings of the American Mathematical Society* 151(4), 2023; [link](#), [link](#)
- **ZHUK, Dmitrii; BARNABY, Martin; WRONA, Michal.** The complete classification for quantified equality constraints. *Proceedings of the, 2023 Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*, 2023; [link](#)

We congratulate all the rewarded authors.<sup>2</sup>

On behalf on Cooperatio Council V. Dolejší, June 3, 2024.

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<sup>2</sup>The financial reward depends on the number of authors and the number of affiliations, it will be carried out on September/October 2024.