Report on Progres Q49 researchers' publications
and on Progres Q49 remuneration for scientific publications
(December 2020)

As in the previous eight years, members of the Council of the Progres Q49–Mathematics project (successor to PRVOUK P47 – Mathematics project) have evaluated the publications published in 2019 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.

The members of the Council had complete information on all publications kept in the OBD/RIV database with the year of publication 2019, for which at least one of the authors was a member of the School of Mathematics / a participant of the Progres Q49 program. There were the **249** publications (last year there were 246 publications, and in years before, in descending order, 232, 226, 286, 273, 277 publications), all having RIV status "accepted". In the most important category of original scientific articles, we have recorded **191** (last year 192, years before 183, 175, 193, 172, 191) original articles, of which **154** (last year 164, years before 156, 152, 166, 147, 157) were published in journals with IF and 37 (last year 28, years before 17, 23, 27, 25, 34) in non-IF journals. The share of articles published in journals with IF in the total number of published original articles was 80.6% this year (last year 85.4%, years before 85.2%, 86.8%, 86.0%, 85.5%, 82.2%). From this point of view, in the category of original scientific articles, a certain stability of the quality of publication activity can be stated. More detailed information on publications in the main categories can be found in the following table.

Publications of the members of the School of Mathematics in 2019 – an overview

Category	Subcategory	No.	no IF	with IF
scientific article	original scientific article	191	37	154
book	monograph	7		
chapter in a book	chapter in a monograph	16		
contribution in proceedings	reviewed contribution	35		
total		249		

A detailed description of the process of evaluation

In the first evaluation round, each member of the Council evaluated by a secret vote all publications of the School of Mathematics in an a-priori agreed way. All the publications were presented to members of Council by the (future) Progres Coordinator (V. Dolejší) in the form of an Excel table containing all the information on publications, including e.g. abstracts. The articles were listed in descending order of IF journals in which they were published. On the basis of these evaluations the Progres Coordinator divided the publications into the categories "Elite"(with a significant positive evaluation of a significant number of evaluators), "Rewarded"(with prevailing positive evaluation but not belonging to "Elite") and "Not-to-be-rewarded" (without any positive evaluation or with few positive evaluations).

In the second evaluation round, on the basis of the division just presented (including the final score of all publications), each member of the Council could individually (electronically) suggest change of status of any publication within the three categories mentioned. They had to give adequate

reasons for their proposal. These proposals were then voted on again (in the event of a tie, the coordinator decides).

The final lists were then discussed and approved of at the Progres Council electronically during December 1-3, 2020. Members of the Progres 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 Progres Council may be rewarded.

Selected publications

(**A**) List of **12 publications** in the **Elite** category, whose (co) authors are members of the School of Mathematics, and who affiliated their publication to MFF UK (alphabetical order). 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 Progres Council; alternatively they are students of the MFF).

- Dominic Breit, Eduard Feireisl, Martina Hofmanova, Bohdan Maslowski: Stationary solutions to the compressible Navier-Stokes system driven by stochastic forces, Probability Theory and Related Fields 3.IV (174):981-1032, https://link.springer.com/article/10.1007%2Fs00440-018-0875-4
- Miroslav Bulíček, Jan Burczak, Sebastian Schwarzacher: Well posedness of nonlinear parabolic systems beyond duality, Annales de l'Institut Henri Poincaré C, Analyse Non Linéaire 5(36): 1467-1500, 2019 https://www.sciencedirect.com/science/article/pii/S0294144919300149
- Miroslav Bulíček, Petr Kaplický, Dalibor Pražák: Uniqueness and regularity of flows of non-Newtonian fluids with critical power-law growth, Mathematical Models and Methods in Applied Sciences 6(29), 2019 https://www.worldscientific.com/doi/10.1142/S0218202519500209
- Ugo Gianazza, Sebastian Schwarzacher: Self-improving property of degenerate parabolic equations of porous medium-type, American Journal of Mathematics 2(141):399-446, 2019 https://muse.jhu.edu/article/718877/pdf
- Tomáš Gergelits, Kent-Andre Mardal, Bjorn Fredrik Nielsen, Zdeněk Strakoš: Laplacian preconditioning of elliptic PDEs: localization of the eigenvalues of the discretized operator, SIAM Journal on Numerical Analysis 3(57): 1369-1394, 2019 https://epubs.siam.org/doi/pdf/10.1137/18M1212458
- Jana Jurečková, Jan Picek, Martin Schindler: Robust Statistical Methods with R, Second Edition, CRC Press Taylor & Francis Group, 2019

  https://www.routledge.com/Robust-Statistical-Methods-with-R-Second-Edition/Jureckova-Picek-Schindler/p/book/9781138035362
- Jan Krajíček: Proof Complexity, Cambridge University Press, 2019 https://www.cambridge.org/core/books/proof-complexity/80BDF46F373753B475550D04F58098A3
- Martin Kružík, Tomáš Roubíček: Mathematical Methods in Continuum Mechanics of Solids, Springer, 2019 https://www.springer.com/gp/book/9783030300197

- Giselle Antunes Monteiro, Antonín Slavík, Milan Tvrdý: Kurzweil-Stieltjes Integral: Theory and Applications, World Scientific, 2018 https://www.worldscientific.com/worldscibooks/10.1142/9432
- Stanislav Nagy, Carsten Schütt, Elisabeth Werner: Halfspace depth and floating body, Statistics Surveys 13:52-118, 2019. https://projecteuclid.org/download/pdfview_1/euclid.ssu/1561169006
- Jan Rataj, Martina Zähle: Curvature Measures of Singular Sets, Springer, 2019 https://www.springer.com/gp/book/9783030181826
- Ondřej Souček, Vít Orava, Josef Málek, Dieter Bothe: A continuum model of heterogeneous catalysis: Thermodynamic framework for multicomponent bulk and surface phenomena coupled by sorption, International Journal of Engineering Science 138:82-117, 2019 https://www.sciencedirect.com/science/article/pii/S002072251732267X

B) List of authors (in alphabetical order) whose publications were categorized as "Rewarded" (29 publications in total). These are (in alphabetical order by surname) members of the School of Mathematics, in brackets one can see the journal in which the rewarded publication appeared. 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 Progres Council; alternatively they are students of the MFF).

Jaromír Antoch, Marie Hušková *(Econometric Reviews)*, Ondřej Bartoš, Vít Dolejší, Filip Roskovec *(Computers and Mathematics with Applications)*, Libor Barto, Michael Kompatscher, Miroslav Olšák, Michael Pinsker *(Journal of Mathematical Logic)*, Miroslav Bulíček, Petr Kaplický, Sebastian Schwarzacher *(Calculus of Variations and Partial Differential Equations)*, Marek Cúth *(Journal of Functional Analysis)*, Vít Dolejší *(Applied Mathematical Modelling)*, Mark Dostalík, Vít Průša, Karel Tůma *(Entropy)*, Miloslav Feistauer, Filip Roskovec *(IMA Journal of Numerical Analysis)*, Giovanni Gravina *(SIAM Journal on Mathematical Analysis)*, Iveta Hnětynková *(Linear Algebra and Its Applications)*, Branislav Jurčo *(Communications in Mathematical Physics)*, Branislav Jurčo *(Fortschritte der Physik)*, Jana Jurečková *(Entropy)*, Alexandr Kazda *(ACM Transactions on Algorithms)*, Václav Kučera *(IMA Journal of Numerical Analysis)*, Svatopluk Krýsl *(Communications in Mathematical Physics)*, Michal Pavelka *(Physica D: Nonlinear Phenomena)*, Michael Pinsker *(SIAM Journal on Computing)*, Stefano Pozza, Zdeněk Strakoš *(Linear Algebra and Its Applications)*, Dalibor Pražák *(Mathematical Models and Methods in Applied Sciences)*, Antonín Slavík *(Advances in Nonlinear Analysis)*, Sebastian Schwarzacher *(Journal of Functional Analysis)*, Petr Somberg *(Journal of Functional Analysis)*, Ondřej Souček, Jaroslav Hron *(Icarus)*, Liran Shaul *(Israel Journal of Mathematics)*, Jan Šťovíček *(Royal Society of Edinburgh - Proceedings A)*, Petr Tichý *(Numerical Algorithms)*, Jan Trlifaj *(Proceedings of the American Mathematical Society)*, Miroslav Tůma *(SIAM Journal of Scientific Computing)*.

We congratulate all the rewarded authors. V. Dolejší, M. Rokyta, December 17, 2020