

List of publications of Mariia Filipkovska (Filipkovskaya)

Journal publications:

1. Filipkovska M.S. *Combined numerical methods for solving time-varying semilinear differential-algebraic equations with the use of spectral projectors and recalculation*. International Journal of Numerical Analysis and Modeling (2025). [Accepted] <https://doi.org/10.48550/arXiv.2212.00012>
2. Filipkovska M. *Criterion of the global solvability of regular and singular differential-algebraic equations*. Journal of Mathematical Sciences, Vol. 280, 897–932 (2024). <https://doi.org/10.1007/s10958-024-07152-7>
3. Filipkovska M. *Initial-boundary value problem for the Maxwell-Bloch equations with an arbitrary inhomogeneous broadening and periodic boundary function*. SIGMA 19 (2023), 096, 39 pages. <https://doi.org/10.3842/SIGMA.2023.096>
4. Filipkovska M. *Qualitative analysis of nonregular differential-algebraic equations and the dynamics of gas networks*. Journal of Mathematical Physics, Analysis, Geometry, Vol. 19, No. 4, 719–765 (2023). <https://doi.org/10.15407/mag19.04.719>
5. Filipkovska M.S. *Two combined methods for the global solution of implicit semilinear differential equations with the use of spectral projectors and Taylor expansions*. Int. J. of Computing Science and Mathematics. Vol. 15, No. 1, 1–29 (2022) (2019 – online publication) <http://dx.doi.org/10.1504/IJCSM.2019.10025236>
6. Filipkovskaya M.S. *Global solvability of time-varying semilinear differential-algebraic equations, boundedness and stability of their solutions. II*. Differential Equations, Vol. 57, No. 2, 196–209 (2021). <https://doi.org/10.1134/S0012266121020099>
7. Filipkovskaya M.S. *Global solvability of time-varying semilinear differential-algebraic equations, boundedness and stability of their solutions. I*. Differential Equations, Vol. 57, No. 1, 19–40 (2021). <https://doi.org/10.1134/S0012266121010031>
8. Filipkovska (Filipkovskaya) M. *Existence, boundedness and stability of solutions of time-varying semilinear differential-algebraic equations*. Global and Stochastic Analysis, Vol. 7, No. 2, 169–195 (2020). <https://www.mukpublications.com/resources/gsa%207-2-5.pdf>
9. Filipkovska M.S., Kotlyarov V.P. *Propagation of electric field generated by periodic pumping in a stable medium of two-level atoms of the Maxwell-Bloch model*. Journal of Mathematical Physics, Vol. 61, No. 12, 123502-1–123502-31 (2020). <https://doi.org/10.1063/5.0020071>
10. Filipkovska (Filipkovskaya) M.S. *Global boundedness and stability of solutions of nonautonomous degenerate differential equations*. Proceedings of the Institute of Mathematics and Mechanics, National Academy of Sciences of Azerbaijan. Vol. 46, No. 2, 243–271 (2020). <https://doi.org/10.29228/proc.31>
11. Filipkovska (Filipkovskaya) M.S. *A block form of a singular pencil of operators and a method of obtaining it*. Visnyk of V.N. Karazin Kharkiv National University. Ser. “Mathematics, Applied Mathematics and Mechanics”, Vol. 89, 33–58 (2019). <https://doi.org/10.26565/2221-5646-2019-89-04>
12. Filipkovska M.S. *Lagrange stability of semilinear differential-algebraic equations and application to nonlinear electrical circuits*. Journal of Mathematical Physics, Analysis, Geometry, Vol. 14, No. 2, 169–196 (2018). <https://doi.org/10.15407/mag14.02.169>
13. Filipkovska M.S. *Lagrange stability and instability of irregular semilinear differential-algebraic equations and applications*. Ukrainian Mathematical Journal, Vol. 70, No. 6, 947–979 (2018). <https://doi.org/10.1007/s11253-018-1544-6>
14. Filipkovska M.S., Kotlyarov V.P., Melamedova E.A. *Maxwell-Bloch Equations without Spectral Broadening: gauge equivalence, transformation operators and matrix Riemann-Hilbert problems*.

- Journal of Mathematical Physics, Analysis, Geometry, Vol. 13, No. 2, 119–153 (2017). <https://doi.org/10.15407/mag13.02.119>
15. Filipkovska M.S. *Lagrange stability and numerical method for solving semilinear descriptor equations*. Visn. Kharkiv. Nats. Univ. Mat. Model. Inform. Tekh. Avt. Syst. Upr. [Bull. of V. Karazin Kharkiv National University. Series Math. Model. Inform. Tech. Automat. Control Syst.], Vol. 26, No. 1156, 152–167 (2015).
 16. Filipkovskaya M. *Global solvability of singular semilinear differential equations and applications to nonlinear radio engineering*. Challenges of modern technology, Vol. 6, No. 1, 3–13 (2015).
 17. Filipkovskaya M.S. *The global solvability of the overdetermined singular system of differential-algebraic equations and applications in radiotechnics*. Radioelectronics & Informatics, No. 1(64), 7–16 (2014).
 18. Filipkovskaya M.S. *Global solvability of the underdetermined singular system of differential-algebraic equations*. Proceedings of Voronezh State University, Ser.: Physics. Mathematics, No. 3, 168–181 (2014). <http://www.vestnik.vsu.ru/pdf/physmath/2014/03/2014-03-15.pdf>
 19. Rutkas A.G., Filipkovskaya M.S. *Global solvability of the differential-algebraic equations of nonlinear electric circuits*. Zh. Obchysl. Prykl. Mat. [Journal of Computational and Applied Mathematics], No. 4, 131–142 (2013). http://nbuv.gov.ua/UJRN/jopm_2013_4_17
 20. Rutkas A.G., Filipkovskaya M.S. *Extension of solutions of one class of differential-algebraic equations*. Zh. Obchysl. Prykl. Mat., No. 1, 135–145 (2013). http://nbuv.gov.ua/UJRN/jopm_2013_1_17
 21. Filipkovskaya M.S. *Continuation of solutions of semilinear differential-algebraic equations and applications in nonlinear radiotechnics*. Visn. Kharkiv. Nats. Univ. Mat. Model. Inform. Tekh. Avt. Syst. Upr. [Bull. of V. Karazin Kharkiv National University. Series Math. Model. Inform. Tech. Automat. Control Syst.], Vol. 19, No. 1015, 306–319 (2012).

Publications in peer-reviewed conference proceedings:

1. Filipkovska, L., Filipkovska, M. (2024). *Cognitive Component of Development of the Innovative Diffusion of the Socio-Economic Systems*. In: Nechyporuk, M., Pavlikov, V., Krytskyi, D. (eds) Integrated Computer Technologies in Mechanical Engineering - 2023. ICTM 2023. Lecture Notes in Networks and Systems, Vol. 996. Springer, Cham, pp. 14-40. https://doi.org/10.1007/978-3-031-60549-9_2
2. Filipkovska, M.S. *Combined numerical method for solving time-varying semilinear differential-algebraic equations*. International scientific conference dedicated to the 75th anniversary of the department of differential equations and the 85th anniversary of Mykhailo Pavlovych Lenyuk, Chernivtsi, Ukraine, October 28–30, 2021. Conference materials, 182–183.
3. Filipkovskaya, M.S. *The boundedness of global solutions of semilinear descriptor equations and their numerical analysis*. Proceedings of XVII International Symposium “Discrete Singularities Methods in Mathematical Physics” (DSMMPh–2015), Sumy, Ukraine, June 8–13, 2015, 249–252.
4. Filipkovska, M.S. *Numerical method for solving a semilinear differential-algebraic equation*. Proceedings of VIII I.I. Lyashko International Scientific Conferences “Computational and Applied Mathematics”, Kyiv, Ukraine, October 8–9, 2015, 85–87.
5. Filipkovskaya, M.S. *On conditions for the global solvability of differential-algebraic equations*. Proceedings of International Conference “Voronezh Winter Mathematical School of S.G. Crane – 2014”, Voronezh, Russia, January 26–31, 2014, 362–372.