

# Curriculum Vitae

**First name:** Mariia  
**Last name:** Filipkovska  
**Citizenship:** Ukraine  
**E-mail:** mariia.filipkovska@asc.tuwien.ac.at  
filipkovskaya@ilt.kharkov.ua  
**Academic Degree:** *Ph.D. (Physical and Mathematical Sciences)*

## AFFILIATION

*First affiliation:* **Institute for Analysis and Scientific Computing,**  
**Technische Universität Wien (TU Wien),** Karlsplatz 13, 1040 Vienna, Austria

*Second affiliation:* **Department of Mathematical Physics,** Mathematical Division,  
**B. Verkin Institute for Low Temperature Physics and Engineering of the National**  
**Academy of Sciences of Ukraine (B. Verkin ILTPE of NAS of Ukraine),** Nauky Avenue  
47, 61103 Kharkiv, Ukraine

## EDUCATION

*Ph.D. (Physical and Mathematical Sciences),* School of Mechanics and Mathematics (now,  
School of Mathematics and Computer Sciences), V.N. Karazin Kharkiv National University, Kharkiv,  
Ukraine, 2012–2015 (the diploma issued by Kharkiv National University of Radio Electronics in 2016).  
Thesis: Global solvability of differential-algebraic equations and mathematical modelling of the dy-  
namics of nonlinear radio engineering circuits. Scientific adviser: D.Sc., Prof. A.G. Rutkas.  
*Specialty:* Mathematical Modelling and Numerical Methods

*Master of Science (Applied Mathematics),* School of Mechanics and Mathematics, V.N.  
Karazin Kharkiv National University, 2007–2012

## POSITIONS

- **Postdoctoral Researcher (Projektassistentin)** (November 2024 – *the present time*), Institute  
for Analysis and Scientific Computing, TU Wien
- **Senior Research Fellow** (2021 – *the present time*), Department of Mathematical Physics (Math-  
ematical Division), B. Verkin ILTPE of NAS of Ukraine
- **Visiting Scientist** (May 2022 – June 2022, January 2024 – October 2024), Chair for Dynam-  
ics, Control, Machine Learning and Numerics, Friedrich-Alexander-Universität Erlangen-Nürnberg  
(FAU Erlangen-Nürnberg)
- **Postdoctoral Researcher** (July 2022 – December 2023), Chair for Dynamics, Control, Machine  
Learning and Numerics, FAU Erlangen-Nürnberg
- **Research Fellow** (2017 – 2021), Department of Mathematical Physics, B. Verkin ILTPE of NAS  
of Ukraine
- **Associate professor** (2018 — 2019), Department of Electronics and Control Systems, School of  
Computer Sciences, V.N. Karazin Kharkiv National University
- **Senior Lecturer** (2017 — 2018; 2019 – 2020), Department of Electronics and Control Systems,  
School of Computer Sciences; Department of Higher Mathematics and Computer Sciences, School  
of Mathematics and Computer Sciences, V.N. Karazin Kharkiv National University
- **Junior Research Fellow** (2016 – 2017), Department of Mathematical Physics, B. Verkin ILTPE  
of NAS of Ukraine
- **Junior Research Fellow** (2013 – 2014), **Senior laboratory assistant, Laboratory assis-**  
**tant** (2012), Department of Mathematical Modeling and Software, School of Mechanics and Math-  
ematics (now, School of Mathematics and Computer Sciences), V.N. Karazin Kharkiv National  
University [research work “Analysis of evolution problems with equations of the Sobolev type”]

## RESEARCH INTERESTS

Theory (solvability, stability, control, qualitative analysis and long-time behavior) and numerical methods (development, analysis and implementation in MATLAB) for

- differential-algebraic equations (DAEs) (DAEs are also called descriptor systems, degenerate differential equations and dynamical systems on manifolds);
- partial differential equations (PDEs) and partial differential-algebraic equations (PDAEs).

Applications: theoretical and numerical analysis of mathematical models of electrical, gas, transport and neural networks, as well as other models in the form of DAEs, PDEs and PDAEs. Analysis of integrable PDEs arising in nonlinear optics.

## GRANTS, RESEARCH AWARDS AND SCHOLARSHIPS

- Grant from Alexander von Humboldt Foundation to support experienced Ukrainian researcher (Project “Global and numerical analysis of descriptor systems and integrable nonlinear partial differential equations and applications”, Project number 1153084 - ESP-AHP), 2022–2023.
- Scholarship of the Collaborative Research Center TRR 154 at FAU Erlangen-Nürnberg (the SFB TRR 154 project, subproject C03), May–June 2022, January–October 2024.
- Scholarship grant of the Wolfgang Pauli Institute (Austria) within the framework of the WPI thematic program “Computer Science and Logic”, March–May 2022.
- Grant of the National Academy of Sciences of Ukraine (project “Nonstandard nonlocal and peakon integrable equations: asymptotics and inverse scattering transform”, State Reg. No. 0121U111968), 2021–2022, Leader.
- The Ya.S. Pidstryhach Award for young scientists, 2021
- Grant of the National Academy of Sciences of Ukraine (project “Qualitative, asymptotic and numerical analysis of various classes of differential equations and dynamical systems, their classification, and practical application”, State Reg. No. 0119U102376), 2019–2020, Leader.
- Grant of the State Fund for Fundamental Research (project “Operator-Differential Equations and Their Applications to Problems of Physics”, State Reg. No. 0118U001778), 2018, Performer.
- Scholarship of the National Academy of Sciences of Ukraine for young scientists, March 2017 – May 2019.
- Scholarships of the Akhiezer Foundation, 2014 and 2019.

## SELECTED CONFERENCES AND WORKSHOPS. TRAVEL GRANTS

- Fifth Austrian Day of Women in Mathematics (Vienna, Austria, 2025)
- Int. Conference “Trends in Mathematical Sciences” (Erlangen, Germany, 2024)
- The XIII International Conference of the Georgian Mathematical Union (Batumi, Georgia, 2023)
- *Travel Grant*: “Dynamical systems and control” (Würzburg, Germany, 2023)
- *Invited speaker*: Guest Colloquium organized by the Women’s Representative of the Faculty of Natural Sciences at the FAU Erlangen-Nürnberg (Erlangen, Germany, 2022)
- Workshop-Summer Schools “IX, X Partial differential equations, optimal design and numerics” (Benasque, Spain, 2022, 2024)
- *Travel Grant*: The 8th European Congress of Mathematics (8ECM) (Portorož, Slovenia, 2021)
- The Conference of Young Scientists “Pidstryhach Readings – 2021” (Lviv, Ukraine, 2021)
- International Conference of Young Mathematicians (Kyiv, Ukraine, 2019, 2021)
- *Travel Grant*: Int. Conference “Modern Problems of Mathematics and Mechanics” (Baku, Azerbaijan, 2019)
- *Travel Grant*: 27th International Conference in Operator Theory (Timisoara, Romania, 2018)
- Int. Conf. “Computer modelling in high tech (CMHT-2018)” (Kharkiv, Ukraine, 2018)

- Int. conferences “Analysis and Mathematical Physics” (Kharkiv, Ukraine, 2015, 2016, 2017)
- *Travel Grant*: Summer School “Spectral Theory, Differential Equations and Probability” (Mainz, Germany, 2016)
- XVII International Symposium “Methods of Discrete Singularities in Problems of Mathematical Physics” (Sumy, Ukraine, 2015)
- I.I. Lyashko International Scientific Conferences “Computational and Applied Mathematics” (Kyiv, Ukraine, 2013, 2014, 2015)

**LANGUAGES:** *English*: fluent. *Ukrainian, Russian*: native speaker

## **REFeree**

- Journal of Computational and Applied Mathematics
- Communications in Mathematical Physics
- Journal of Mathematical Physics
- Visnyk of V.N. Karazin Kharkiv National University

## **MEMBERSHIPS**

- Member of the Austrian Association of Women in Mathematics
- Member of Young Scientists Council of the Department of mathematics of the National Academy of Sciences of Ukraine
- Member of Council of Young Scientists of B. Verkin ILTPE of NAS of Ukraine
- Member of Kharkiv Mathematical Society

**PROGRAMMING SKILLS:** MATLAB and Simulink; C++; Java; Maple

## **PROFILES IN SCIENTOMETRIC DATABASES**

**ORCID:** <https://orcid.org/0000-0002-2266-1243>

**WoS:** <https://www.webofscience.com/wos/author/record/AAG-6786-2020>

**Scopus:** <https://www.scopus.com/authid/detail.uri?authorId=57194334316>

**zbMATH:** <https://zbmath.org/authors/?q=ai:filipkovska.maria-s>