Artem Tomilo

Curriculum Vitae

Personal information

Date & place	31 August 1999, Cherkasy, Ukraine
Email	artem.tomilo@math.uoc.gr
Phone	+306949376325 (WhatsApp)
Web-page	https://artetom.github.io/
Linkedin	https://www.linkedin.com/in/artem-tomilo-9800291a7
ORCID	http://orcid.org/0000-0002-5390-2767
Google Scholar	https://scholar.google.com/citations?user=PJDjbzcAAAAJ&hl=en&authuser=1

Education

2024 – now	**University of Crete**, *Department of Math and Applied Math*, PhD student, Thesis adviser is Prof. Evangelos Harmandaris
2021 – 2023	**Technische Universität Dresden**, *Faculty of Computer Science*, M. Sc., Thesis advisers are Prof. A. Deutsch, Dr. L. Brusch and Robert Mueller
2017 – 2021	**Taras Shevchenko National University of Kyiv** (with Honor), *Faculty of Radio Physics, Electronics and Computer Systems*, B. Sc., Thesis advisers are Prof. D. D. Sheka and Dr. O. V. Pylypovskyi
2012 – 2017	**Cherkasy Physics and Mathematics Lyceum** (with Honor)

Research visits

14.01.2021 – 25.03.2021	**Helmholtz-Zentrum Dresden-Rossendorf e.V. (HZDR)**, Dresden, Germany, Project: "*Spin-lattice simulations of antiferromagnetic thin films*", Grant for a short research study (supervisor Dr. Jürgen Faßbender)
01.08.2019 – 31.08.2019	**Leibniz-Institut für Festkörper- und Werkstoffforschung (IFW Dresden)**, Dresden, Germany, Project: "*Numerical study of flexomagnetic systems at nanoscale*", Financed in frame of guest visit by IFW (supervisor Dr. Ulrich K. Rößler)
07.01.2019 – 19.01.2019	**Helmholtz-Zentrum Dresden-Rossendorf e.V. (HZDR)**, Dresden, Germany, Project: "*Micromagnetic simulations of curvature effects in curved thin films*", Grant for a short research study (supervisor Dr. Jürgen Faßbender)

Internship

25.02.2025 – 25.04.2025	**Cyprus Institute**, Nicosia, Cyprus, Grant for a traineeship visit (supervisor Prof. Evangelos Harmandaris)
01.05.2022 – 30.09.2022	**Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG)**, Dresden, Germany, Grant for a short research study (supervisor Dr. Ivo Sbalzarini)

Scholarships

2021-2023 **Master's degree for all scientific subjects**, Germany, Dresden. This grant was awarded for master's studies

2017-2018 **Scholarship of the President of Ukraine**, Kyiv, Ukraine. This is the most prestigious grant for students in Ukraine

Research & educational programs

20.10.2019 – 02.11.2019 **Huawei educational program "Seeds for Future"**, Visit to Beijing and Shenzhen, China. https://www.huawei.com/minisite/seeds-for-the-future/program.html

2018 **Alexander von Humboldt Foundation**, Participation in the Research Group Linkage Programme of Prof. D. Sheka (cooperation between HZDR and Taras Shevchenko National University of Kyiv) "Statics and dynamics of topological textures in curved magnetic nanoobjects".

Scientific interests

- Machine learning
- Coarse-grained systems
- Parallel and high performance computations
- Artificial intelligence
- Computational simulations
- Algorithms and data structures

Research achievments

On-fly determination of coordinate-dependent material parameters for magnetic shells, parallel execution using CPU (MPI) and GPU (CUDA) for the spin-lattice simulator SLaSi. This provided me with:

- Co-authorship in paper published in Physical Review B (O. V. Pylypovskyi et al, DOI:10.1103/PhysRevB.103.134413)
- Acknowledgment in Nature Physics (N. Hedrich et al, DOI:10.1038/s41567-020-01157-0)
- Co-authorship in paper published in Nano Letters (O. V. Pylypovskyi et al, DOI:10.1021/acs.nanolett.0c03246)

Publications

Articles in preparation

2024 **Artem V. Tomilo**, Robert Müller, Lutz Brusch, Simon Syga and Andreas Deutsch, "*Mechanical Link and Persistent Motion Mechanisms in Collective Cell Migration*", In: PLOS Comp. Biol. (2023)

Articles

2023 Oleksandr V. Pylypovskyi, Natascha Hedrich, **Artem V. Tomilo**, Tobias Kosub, Kai Wagner, René Hübner, Brendan Shields, Denis D. Sheka, Jürgen Fassbender, Patrick Maletinsky, and Denys Makarov, "*Effects of geometry on antiferromagnetic textures: boundaries and geometric curvature*", In: Phys. Rev. Applied 20, 014020 (2023)
https://doi.org/10.1103/PhysRevApplied.20.014020

2021 Oleksandr V. Pylypovskyi, **Artem V. Tomilo**, Denis D. Sheka, Jürgen Fassbender, Denys Makarov, "*Boundary conditions for the Néel order parameter in a chiral antiferromagnetic slab*", In: Physical Review B, 103, 134413 (2021)
https://doi.org/10.1103/PhysRevB.103.134413

2020 Oleksandr V. Pylypovskyi, Denys Y. Kononenko, Kostiantyn V. Yershov, Ulrich K. Rößler, **Artem V. Tomilo**, Jürgen Fassbender, Jeroen van den Brink, Denys Makarov, and Denis D. Sheka, "*Curvilinear one-dimensional antiferromagnets*", In: Nano Letters, 20, 8157–8162 (2020)
https://doi.org/10.1021/acs.nanolett.0c03246

Conference proceedings

2026 **Artem Tomilo**, Antonis Chazirakis, Nikolaos Patsalidis Evangelos Harmandaris "*An Ab-initio Based Software Pipeline for Machine Learning Models in Molecular Dynamics Simulations of Complex Molecular Systems*", Proceedings of 15th Hellenic Scientific Conference on Chemical Engineering, June 3-5, Chania, Greece (2025)
https://pesxm15.tuc.gr/%cf%80%cf%81%ce%b1%ce%ba%cf%84%ce%b9%ce%ba%ce%ac-%cf%83%cf%85%ce%bd%ce%b5%ce%b4%cf%81%ce%af%ce%bf%cf%85/

2025 **Artem Tomilo**, Nikolaos Patsalidis, George Sakellion, Evangelos Harmandaris "*Molecular Dynamics Simulations for Organic Molecules using Atomic Cluster Expansion Potentials*", Proceedings of 15th Hellenic Polymer Society Conference, December 3-6, Patras, Greece (2025)
https://polyconf15.gr/wp-content/uploads/2025/12/FINAL-ABSTRACT-BOOK-TOTAL-18-12.pdf

2025 **Artem Tomilo**, Nikolaos Patsalidis, George Sakellion, Evangelos Harmandaris "*Atomistic Cluster Expansion Methods For Machine Learning Potentials of Organic Systems*", Proceedings of XXXIX (39th) Panhellenic Conference on Solid State Physics & Materials Science, September 14-17, Paphos, Cyprus (2025)
https://fsk2025.cut.ac.cy/FSK39_2025_Paphos%20-%20ABSTRACTS%20BOOK.pdf

2023 Oleksandr V. Pylypovskyi, Yelyzaveta Borysenko, **Artem V. Tomilo**, Denys Kononenko, Kostiantyn Yershov, Ulrich Roessler, Jürgen Fassbender, Jeroen van den Brink, Denis D. Sheka and Denys Makarov, "*Effects of geometry on antiferromagnetic textures: boundaries and geometric curvature*", APS March Meeting, March 20-22, Las Vegas, USA (2023)
https://meetings.aps.org/Meeting/MAR23/Session/SS01.16

2021 **Artem V. Tomilp**, Oleksandr V. Pylypovskyi, Kostiantyn V. Yershov, and Denis D. Sheka, "*Parallel computation of 3D magnetic structures*", Proceedings of the WE-Heraeus-Seminar Curvilinear Condensed Matter: Fundamentals and Applications, June 24-26, Online Seminar (2021)
https://www.we-heraeus-stiftung.de/veranstaltungen/seminare/2021/curvilinear-condensed-matter-fundamentals-and-applications/

2020 **Artem V. Tomilp**, Oleksandr V. Pylypovskyi, Kostiantyn V. Yershov, and Denis D. Sheka, "*Parallel computing of elastic magnetic systems at the nanoscale*", Proceedings of the Sixth International Conference on High Performance Computing, November 6-7, Kyiv, Ukraine (2020)

2018 **Artem V. Tomilp**, Oleksandr V. Pylypovskyi, Kostiantyn V. Yershov, and Denis D. Sheka, "*Spin-lattice simulation of magnetic nanowires with geometry-driven parameters*", Proceedings of the Fifth International Conference on High Performance Computing (HPC-UA 2018), October 22-23, Kyiv, Ukraine (2018)

Artem V. Tomilp, Oleksandr V. Pylypovskyi, Kostiantyn V. Yershov, and Denis D. Sheka, "*Simulation of 3D spin chains with geometry-driven anisotropy*", Proceedings of the XVIII International Young Scientists Conference On Applied Physics, March 24-27, Kyiv, Ukraine (2018)
https://indico.knu.ua/event/2/contributions/272/

2017 **Artem V. Tomilp**, Sergey V. Babenko, "*Exploring of the traveling salesman problem (TSP) by an ant algorithm*", Proceedings of All-Ukrainian Research Paper Defense Competition of the Junior Academy of Sciences, March 24-27, Kyiv, Ukraine (2017)
https://man.gov.ua/en/contests/olympiad/konkurs-zahist-naukovo-doslidnicskih-robit-uchniv-chleniv-man

Artem V. Tomilo, Yuriy S. Bilogorodsky, "*Using of crowdsourcing technology combined with an ant algorithm to find optimal routes by rail*", Proceedings of All-Ukrainian Research Paper Defense Competition of the Junior Academy of Sciences, April 25-28, Kyiv, Ukraine
https://man.gov.ua/en/contests/olympiad/konkurs-zahist-naukovo-doslidnicskih-robit-uchniv-chleniv-man

Event organizations

24.08.2023 **Independence Day of Ukraine 2023 (association Stützpunkt Ukraine)**, Dresden, Germany,
https://www.stuetzpunkt-ukraine.de/unabhaebgigkeitstag-der-ukraine

24.06.2023 **Exhibition "War through children's eyes" (association Stützpunkt Ukraine)**, Dresden, Germany,
https://www.stuetzpunkt-ukraine.de/projekte

26.12.2021 & 22.04.2018 **Physical Experiment Team Olympiad for pupils (ExPhO)**, Kyiv, Ukraine, jury member
https://sites.google.com/view/tolymp/expho?authuser=0

25.02.2019, 27.11.2019, 25.04.2021 & 13.05.2023 **Computer Experiment Team Olympiad for pupils (CETO)**, Kyiv, Ukraine, jury member
https://sites.google.com/view/tolymp/ceto?authuser=0

22.05.2019 – 25.05.2019 **International workshop "Curvilinear magnetism" (CurvMag)**, Kyiv, Ukraine, member of the organizing committee
http://ritm.knu.ua/curvmag19/

Languages

English **Advanced (C1)**

German **Elementary (A2)**

Greek **Elementary (A2)**

Ukrainian, Russian **Native**

Technical skills

Programming languages: C/C++, Go, Julia, C#, Python, Bash

High-performance computing: CUDA, OpenMP, Dask and MPI

Software packages: ParaView, Intel VTune Amplifier, Nvidia CUDA Profiler

Virtualization: KVM, VMWare, Docker, LXC and Ansible Tower

Other skills: TeX/LaTeX, Wolfram Mathematica

Interests and hobbies

Interests: history, modern literature

Sport: basketball, swimming and badminton

Entertainment: traveling, art-rock and reading