Selim Sukhtaiev

Curriculum Vitae

Auburn University
Department of Mathematics and Statistics
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Research Interests

Analysis of partial differential equations, spectral theory, infinite dimensional dynamical systems, mathematical biology, mathematical physics

Appointments

2020– **Assistant Professor**, *Department of Mathematics and Statistics, Auburn University*.

2017–2020 **G.C. Evans Instructor**, *Department of Mathematics, Rice University*.

Education

2012–2017 **Ph.D. in Mathematics**, *University of Missouri*, Columbia, MO.
Advisors: Fritz Gesztesy and Yuri Latushkin.

2007–2012 **B.Sc. in Mathematics (summa cum laude)**, *Taras Shevchenko National University of Kyiv*, Ukraine.

Funding

1. NSF DMS 2418900, "LEAPS-MPS: Research in applied analysis: evolution equations on networks", PI, award amount $250,000, 2024-2026. Status: active.
2. NSF DMS 2510344 "Collaborative Research: Spectral theory and edge states in topological insulators", PI, award amount $181,162 (with additional funding awarded to Texas A&M University (G. Berkolaiko); collaborative total $321,162), 2025-2028. Status: active.
3. Binational Science Foundation "Index Theorems for Quantum Graphs, Differential Operators and Beyond", PI, award amount $133,793 (with additional funding awarded Technion – Israel Institute of Technology (R. Band), collaborative total $266,000), 2025-2029. Status: recommended for funding.
4. Simons Foundation, Collaboration grant for mathematicians. "Index Theorems in Analysis, Mathematical Physics, and Spectral Theory". PI, award amount: $42,000, 2023-2028. Status: active.
5. NSF DMS 2243027, "Conference: Joint Alabama–Florida Conference on Differential Equations, Dynamical Systems and Applications". PI, award amount: $26,010, 2023-2024.
6. Research Support Program OVPRED Auburn University, "Population dynamics in complex media". PI, award amount: $35,536, 2022-2025.
7. Simons Foundation: "Ergodic Operators and Quantum Graphs". This award funded a one week workshop at the Simons Center for Geometry and Physics at Stony Brook University (joint with D. Damanik, J. Fillman). Award amount $50,000. 2022.

8. Simons Foundation & American Mathematical Society. Simons Travel Grant. Amount $4,800, 2018-2020.

Honors and awards

2022	Robert K. Butz Award for Excellence in Teaching, Auburn University
2017	Excellence in Teaching Award, University of Missouri
2017 & 2016	SIAM Student Travel Award
2016	Teaching Assistant Choice Award (campus level award), University of Missouri
2014	N. Kalton Fellowship, University of Missouri
2013	PhD Qualifying Exam Award–Analysis Part, University of Missouri
2012-2013	Lee & Cozette McFarlan Fellowship, University of Missouri

Advising and mentoring

Graduate students

Auburn Hewan Meles Shemtaga co-advised jointly with W. Shen. Graduation date: August 2025. First job after graduation: J.L. Doob Assistant Professor at the University of Illinois Urbana-Champaign.

Postdoctoral fellows

Auburn Mitch Curran (previously at the University of Sydney)

Undergraduate students

Rice Univ. Co-advised Jacob Kesten jointly with D. Damanik. Jacob was awarded Hubert E. Bray Prize by Rice Mathematics Department for our joint work. He also gave a talk in a BRIS Workshop in Banff, Canada

Rice Univ. Co-advised Mark Helman jointly with D. Damanik. Mark gave two talks about our joint work: 1) BRIS Workshop in Banff, Canada, 2) Gulf Coast Undergraduate Research Symposium

Publications

Published papers

1. "Well–posedness of Keller–Segel systems on compact metric graphs"; with H. Shemtaga, W. Shen, **Journal of Evolution Equations** 25, 7 (2025) [62 pages]
arxiv:2403.19747 doi.org/10.1007/s00028-024-01033-x

2. "First-order asymptotic perturbation theory for extensions of symmetric operators"; with Y. Latushkin, **Journal of the London Mathematical Society** Volume110, Issue 5, November 2024, e13005, [83 pages]
arxiv:2012.00247 doi.org/10.1112/jlms.13005

3. "Spectral properties of Schrödinger operators with locally H^{-1} potentials"; with M. Lukic, X. Wang, **Journal of Spectral Theory 14**, no. 1, 59–120 (2024) [62 pages]
arxiv.org/abs/2206.07079 doi.org/10.4171/JST/490

4. "Stability and bifurcation for logistic Keller–Segel models on compact graphs"; with H. Shemtaga,

W. Shen, **Pure and Applied Functional Analysis**, (9), 5 (2024) [24 pages].
arxiv:2310.00756

5. "Resolvent expansions for self-adjoint operators via boundary triplets"; with Y. Latushkin, **Bulletin of London Math. Soc.**, 54, 2469–2491 (2022) [23 pages]
arxiv:2110.07434 doi.org/10.1112/blms.12706

6. "Random Hamiltonians with arbitrary point interactions"; with D. Damanik, J. Fillman, M. Helman, J. Kesten, **Journal of Differential Equations** 282, 104-126 (2021) [22 pages]
arXiv:1907.09530; doi.org/10.1016/j.jde.2021.01.044

7. "Localization for Anderson models on metric and discrete tree graphs"; with D. Damanik, J. Fillman, **Mathematische Annalen** 376, 1337–1393 (2020) [57 pages]
arXiv:1902.07290 doi.org/10.1007/s00208-019-01912-6

8. "Zero measure and singular continuous spectra for quantum graphs"; with D. Damanik, L. Fang, **Annales Henri Poincare**, 21, 2167–2191 (2020), [25 pages]
arXiv:1906.02088; doi.org/10.1007/s00023-020-00920-6

9. "An index theorem for Schrödinger operators on metric graphs"; with Y. Latushkin, In *Analytic trends in mathematical physics*, **Contemporary Mathematics**, Amer. Math. Soc., Providence, RI, 2020, pp. 105–119 [15 pages]
arXiv:1809.09344; doi.org/10.1090/conm/741

10. "Limits of quantum graph operators with shrinking edges"; with G. Berkolaiko, Y. Latushkin, **Advances in Mathematics** 352, 632–669 (2019) [38 pages]
arXiv:1806.00561 doi.org/10.1016/j.aim.2019.06.017

11. "Anderson localization for radial tree graphs with random branching numbers"; with D. Damanik, **Journal of Functional Analysis** 277, 418–433, (2019) [16 pages]
arXiv:1803.06037; doi.org/10.1016/j.jfa.2018.11.007

12. "The Maslov index and the spectra of second order elliptic operators"; with Y. Latushkin, **Advances in Mathematics** 329, 422–486 (2018) [65 pages]
arXiv:1610.09765 doi.org/10.1016/j.aim.2018.02.027

13. "The Morse and Maslov indices for Schrödinger operators"; with Y. Latushkin and A. Sukhtayev, **Journal d'Analyse Mathematique** 135, 345–387 (2018) [43 pages]
arXiv:1411.1656; doi.org/10.1007/s11854-018-0043-x

14. "A bound for the eigenvalue counting function for Krein–von Neumann and Friedrichs extensions"; with M. S. Ashbaugh, F. Gesztesy, A. Laptev, and M. Mitrea, **Advances in Mathematics** 304, 1108–1155 (2017) [48 pages]
arXiv:1806.00561 doi.org/10.1016/j.aim.2016.09.011

15. "Counting spectrum via the Maslov index for one dimensional $\theta-$periodic Schrödinger operators"; with C. K. R. T. Jones and Y. Latushkin, **Proceedings of the AMS** 145, 363-377 (2017) [15 pages]
arXiv:1510.05015; doi.org/10.1090/proc/13192

16. "A bound for the eigenvalue counting function for higher-order Krein Laplacians on open sets"; with F. Gesztesy, A. Laptev, and M. Mitrea. In *Mathematical Results in Quantum Mechanics,* ***Proceedings of the QMath12 Conference****,* P. Exner, W. König, and H. Neidhardt (eds), World Scientific, Singapore, 2015, pp. 3-29. [27 pages]
arXiv:1403.3731; doi.org/10.1142/9789814618144_0001

Preprints

17. "The Duistermaat index and eigenvalue interlacing for self-adjoint extensions of a symmetric operator"; with G. Berkolaiko, G. Cox, Y. Latushkin, [35 pages]
arxiv:2311.06701

18. "Duistarmaat's triple index and the difference of Hermitian matrices "; with G. Berkolaiko, G. Cox, Y. Latushkin, [15 pages]
arxiv:2412.20825

19. "Some Remarks On Krein–von Neumann Extensions"; with F. Gesztesy, [24 pages]
arxiv:2504.11718

Seminars, workshops, conferences organized

- May 14-10, 2026, Fourth Joint Alabama-Florida Conference on Differential Equations, Dynamical Systems and Applications, Florida International University (with Z. Muslamini, S. Roudenko, M. Stanislavova).
- May 21-22, 2025, Third Joint Alabama-Florida Conference on Differential Equations, Dynamical Systems and Applications, University of Alabama, Birmingham (with Z. Muslamini, S. Roudenko, M. Stanislavova).
- May 21-22, 2025, The 14th International Conference on Nonlinear Evolution Equations and Wave Phenomena. Session title: "Geometric methods in spectral theory of traveling waves" (with M. Curran, Y. Latushkin).
- May 17-19, 2024, Second Joint Alabama-Florida Conference on Differential Equations, Dynamical Systems and Applications, Florida State University (with Z. Muslamini, S. Roudenko, M. Stanislavova)
- Fall 2023-date DMS Colloquium at Auburn University
- July 31-August 4, 2023, University of Helsinki, 34th International Workshop on Operator Theory and Applications (IWOTA 2023). Special session on "Spectral Theory and Partial Differential Operators" (with Yuri Latushkin)
- May 13-14, 2023, Joint Alabama-Florida Conference on Differential Equations, Dynamical Systems and Applications, Auburn University (with Z. Muslamini, S. Roudenko, M. Stanislavova)
- PDE Reading Seminars on C_0 semigroups for graduate students, Auburn University.
- June 6-10, 2022, The Simons Center for Geometry and Physics, Stony Brook University, New York. "Ergodic Operators and Quantum Graphs" (with D. Damanik, J. Fillman)
- March 30 - April 01, 2022, Georgia Center for Continuing Education University of Georgia, Athens, GA, USA. The Twelfth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory. Session title: "Geometric Methods in spectral stability of waves and patterns" (with Y. Latushkin)

- November 20-21, 2021, Fall Southeastern Sectional Meeting (formerly at the University of South Alabama). Special session on "Special Session on Harmonic Analysis and Spectral Theory" (with S. Bortz)
- September 18-19, 2021, Auburn University, SIAM Southeastern Atlantic Section Conference. Mini-symposium title: "PDE, Dynamical Systems and Applications" (with M. Han, W. Shen)
- Applied Mathematics Seminar, Auburn University 2021-2022

Service

- Guest editor of *Studies in Applied Mathematics*, special issue "Advances in nonlinear PDE, dynamical systems and spectral theory: analytical and numerical approaches", In preparation.
- Served on an NSF DMS panel 2025
- Analysis Prelim Committee (Chair), Fall 2023
- Served on two (different) NSF DMS panels 2022
- Tenure–Track Hiring Committee Fall-Spring 2022
- Analysis Prelim Exam Committee, 2022, 2024, 2025
- Tenure–Track Hiring Committee, Fall-Spring 2023
- Reviewed submissions for the following journals: International Mathematics Research Notices (1), Journal of Spectral Theory (3), Operator Theory and Complex Analysis (1), Mathematical Physics, Analysis and Geometry (1), Communications on Pure and Applied Analysis (2), Studies in Applied Mathematics(1), Mathematical Reviews/MathSciNet (1), Journal of Mathematical Analysis and Applications(1), International Journal of Mathematics and Mathematical Sciences(1), Analysis and Mathematical Physics (1), Proceedings of the AMS (3), Letters in Mathematical Physics (1). Book reviewer for Cambridge University Press.

Invited talks

1. Chapman University, Advances in Operator Theory with Applications to Mathematical Physics, Chapman 2024. Talk: "Maslov index in spectral theory: on overview", November 18-22, 2024
2. University of Illinois Urbana-Champaign, Harmonic Analysis and Differential Equations Seminar. Talk: "Well-Posedness, Stability, and Bifurcation for Keller-Segel Models on Compact Graphs". October 22, 2024
3. 9th European Congress of Mathematics (9th ECM), Sevilla, Spain.Talk: "Well-Posedness, Stability, and Bifurcation for Keller-Segel Models on Compact Graphs". July 15-19, 2024
4. SIAM Conference on Nonlinear Waves and Coherent Structures, Baltimore MD. Talk: "Well-Posedness, Stability, and Bifurcation for Keller-Segel Models on Compact Graphs", June 24-27, 2024
5. Howard University, AMS Sectional meeting. Talk: "The Maslov index in spectral theory: an overview", Apr 6-7, 2024
6. Graz University of Technology (Austria), Operator Theory Seminar. Talk: "The Maslov index in spectral theory: an overview", Mar 7, 2024
7. University of Vienna, PDE Afternoon Seminar. Talk: "Well-Posedness, Stability, and Bifurcation for Keller-Segel Models on Compact Graphs ", Mar 6, 2024

8. Auburn University, Analysis and Stochastic analysis seminar. Talk: “Maslov index in spectral theory: on overview", Feb 7, 2024
9. Baylor University, Brazos Analysis Seminar (Plenary talk). Talk: “Maslov index in spectral theory: on overview", Oct 21-22, 2023,
10. University of Helsinki, 34th International Workshop on Operator Theory and Applications (IWOTA 2023). Talk: “Maslov index in spectral theory: on overview", July 31-August 4, 2023,
11. Potsdam University (Germany), Seminar on Discrete Spectral Theory. Talk: “Maslov index in spectral theory: on overview", June 19-21, 2023
12. Stockholm University, Marcus Wallenberg Symposium in memory of Sergey Naboko. Talk: “Maslov index in spectral theory: on overview", June 19-21, 2023
13. UNC Wilmington, The 13th AIMS Conference on Dynamical Systems, Differential Equations And Applications. Talk: “Resolvent Expansions for Self-Adjoint Operators Via Boundary Triplets", June 2, 2023
14. Georgia Tech, Mathematical Physics Seminar. Talk: “Maslov index in spectral theory: on overview", April 13, 2023
15. Michigan State University, Mathematical Physics and Operator Algebras Seminar. Talk: “Maslov index in spectral theory: on overview", March 28, 2023
16. Auburn University, DMS Colloquium. Talk:“Spectral methods in analysis and mathematical physics", March 20, 2023
17. Georgia Tech, AMS Sectional meeting. Talk: “Spectral properties of Schrödinger operators with locally H^{-1} potentials", March 18-19, 2023
18. University of Tennessee at Chattanooga, AMS Sectional meeting. Talk: “Spectral properties of Schrödinger operators with locally H^{-1} potentials", October 15-16, 2022
19. Carl von Ossietzky University of Oldenburg (Germany), Asymptotic analysis and spectral theory. Talk: “Asymptotic perturbation theory for extensions of symmetric operators", September 26-30, 2022
20. Auburn University, Applied and Computational Math Seminar, Talk: “Spectral properties of Schrödinger operators with locally H^{-1} potentials", September 9, 2022
21. Stony Brook University, Simons Center for Geometry and Physics, Ergodic operators and quantum graphs. Talk: “Two classes of ergodic operators on metric graphs", June 6-10, 2022
22. Texas State University, San Marcos, Differential equations and applied mathematics seminar. Talk: “Schrödinger operators with singular slowly decaying potentials", April 15, 2022
23. University of Tennessee, Knoxville, PDE Seminar. Talk: “Anderson Localization for Disordered Quantum Graphs", April 7, 2022
24. University of Georgia, Athens, The Twelfth IMACS International Conference, Title: "Two classes of dynamically defined quantum graphs"
25. Baylor University, Analysis Seminar. Talk: “Maslov index and Spectral Flow", March 2, 2022
26. Karlsruhe Institute of Technology, Germany, Conference on Mathematics of Wave Phenomena. Talk: “Asymptotic perturbation theory for extensions of symmetric operators", February 14-18, 2022

27. Stockholm University, Sweden, QGraph 2021: Quantum graphs in Mathematics, Physics and Applications. Talk: “Two classes of dynamically defined quantum graphs", December 8-10, 2021
28. Troy University, AL. Talk: “Localization for Anderson Models on Graphs", November 7, 2021,
29. Chapman University, Orange CA, International Workshop on Operator Theory and its Applications Talk: “A Bound for the Eigenvalue Counting Function For Krein–von Neumann and Friedrichs Extensions", August 9-13, 2021,
30. Michigan State University, Great Lakes Mathematical Physics Meeting, Talk: “Asymptotic perturbation theory for extensions of symmetric operators", June 4, 2021
31. Spring Western Sectional Meeting (formerly at San Francisco State University), Talk: “Limits of quantum graph operators with shrinking edges", May 1-2, 2021
32. Texas State University, San Marcos, Differential Equations and Applied Mathematics Seminar Talk: “Asymptotic perturbation theory for extensions of symmetric operators", April 9, 2021
33. Baylor University, Analysis Seminar, Talk: “Asymptotic perturbation theory for extensions of symmetric operators", March 31, 2021,
34. University of Alabama, Analysis Seminar, Talk: "Localization for Anderson Models on Graphs", February 19, 2021
35. Stockholm University, QGraph 2020: Quantum graphs in Mathematics, Physics and Applications VIII. Zoom-Talk: “Limits of quantum graph operators with shrinking edges", December 8-9, 2020
36. Rice University, Spectral Theory Seminar, Talk: "Hadamard-type formulas and resolvent expansions", October 30, 2020
37. Texas A&M University, 3rd SIAM TX-LA Section, Talk: "Localization for Anderson Models on Graphs", October 16-18, 2020.
38. Auburn University, Colloquium, Talk: "Localization for Anderson Models on Graphs", October 2, 2020
39. Auburn University, Applied and Computational Math Seminar, Series of Zoom-Talks: "Localization for Anderson Models on Graphs", September 25, October 2, October 9, 2020
40. University of Minnesota, Dynamical Systems Seminar, Talk: "Localization for Anderson Models on Graphs", September 22, 2020
41. Auburn University, Graduate Student Seminar, Talk: "Localization for Anderson Models on Graphs", August 26, 2020
42. Binghamton University, Colloquium, February 6, 2020
43. University of Massachusetts Lowell, Colloquium, February 2020
44. King's College London, Job Talk, January 2020
45. Auburn University, Colloquium, January 2020
46. The University of Texas at Dallas, Colloquium, January 2020
47. University of California, Riverside, AMS Fall Western Sectional Meeting. Talk: "Hadamard-type formulas and resolvent expansions", November 9-10, 2019
48. Southern Methodist University, Dallas, TX. SIAM Texas-Louisiana Section 2nd Annual Meeting Talk: "The Maslov Index and the Spectra of Second Order Elliptic Operators", November 1-3, 2019

49. Rice University, Undergraduate Colloquium. Talk: "Localization for Anderson Models on Graphs", October 28, 2019
50. BIRS, Banff, Canada. Workshop on Random Matrix Products and Anderson Localization. Talk: "Localization for Anderson Models on Graphs", September 15-20, 2019
51. Texas A&M University. Mathematical Physics and Harmonic Analysis Seminar. Talk: "Hadamard-type formulas and resolvent expansions", September 13, 2019
52. University of Missouri, Columbia, Analysis in Missouri: a Midwestern symposium. Talk: "Localization for Anderson Models on Graphs", September 5-8, 2019
53. Lake Como, School of Advanced Studies, Italy, Quantum Graphs and Quantum Random Walks in Mathematics, Computer Science and Physics. Talk: "Ergodic Kirchhoff Laplacians", August 4-9, 2019
54. University of Hagen, Germany, On mathematical aspects of interacting systems in low dimension. Talk: "Localization for Anderson Models on Tree Graphs", June 24–27, 2019
55. University of Georgia, Athens, 11th IMACS Conference on Nonlinear Waves. Talk: "Localization for Anderson Models on Tree Graphs", April 17–19, 2019
56. Texas A&M University. Joint Mathematical Physics, Harmonic Analysis and Groups and Dynamics Seminar. Talk: "Localization for Anderson Models on Metric and Discrete Tree Graphs", March 8, 2019
57. Graz University of Technology, Austria, Differential Operators on Graphs and Waveguides. Talk: "Localization for Anderson Models on Tree Graphs", February 25–March 1, 2019
58. University of California, Santa Cruz, Analysis and Geometry seminar, Talk: "The Maslov Index and the Spectra of Second Order Elliptic Operators", November 8, 2018
59. Baylor University, Texas Analysis and Mathematical Physics Symposium, Talk: "Anderson localization for radial tree graphs with random branching numbers ", October 26–28, 2018
60. Karlsruhe Institute of Technology, Germany. Conference on mathematics of wave phenomena. Talk: "The Maslov index and the spectra of second order elliptic operators", July 23–27, 2018
61. SIAM Conference, Anaheim, CA, Talk: "On Limits of Quantum Graph Operators with Shrinking Edges ", June 11–14 2018
62. Portland State University, Portland, OR. AMS Spring Western Sectional Meeting. Talk: "A bound for the eigenvalue counting function for higher-order Krein Laplacians on open sets", April 14–15, 2018
63. University of Houston. PDE seminar. Talk: "The Maslov index and the spectra of second order elliptic operators". March 23, 2018
64. University of Arizona, Tucson. Arizona School of Analysis and Mathematical Physics. Talk: "The Maslov index and the spectra of second order elliptic operators", March 5-9, 2018
65. University of California, Irvine. 36th Western States meeting of Mathematical Physics. Talk: "The Maslov index and the spectra of second order elliptic operators", February 18–19, 2018
66. SIAM conference on analysis of partial differential equations, Baltimore MD.Talk: "The Maslov index and the spectra of second order elliptic operators", December 9–12, 2017
67. University of Texas, Austin, Texas Analysis and Mathematical Physics Symposium 2017. Talk: "The Maslov index and the spectra of second order elliptic operators", November 3–5, 2017

68. Rice University, Geometry-Analysis Seminar. Talk: "The Maslov index and the spectra of second order elliptic operators", September 6, 2017
69. Texas A&M University. Mathematical Physics and Harmonic Analysis Seminar. Talk: "The Maslov index and the spectra of second order elliptic operators", September 1, 2017
70. SIAM Conference on Applications of Dynamical Systems, Snowbird, UT. Talk: "The Maslov index and the spectra of second order elliptic operators", May 21-25, 2017
71. Baylor University. Analysis Seminar, Waco, TX. Talk: "The Maslov index and the spectra of second order elliptic operators", April 12, 2017
72. University of Georgia, Athens, 10th IMACS Conference on Nonlinear Waves. Talk: "The Maslov index and the spectra of second order elliptic operators", March 29-April 01, 2017
73. SIAM Conference on Nonlinear Waves and Coherent Structures, Philadelphia, PA. Talk: "Counting spectrum via the Maslov index for Schrödinger operators", August 8-11, 2016
74. Texas A&M University. Mathematical Physics and Harmonic Analysis Seminar. Talk: "A Bound for the Eigenvalue Counting Function for Higher-Order Krein Laplacians on Open Sets", November 13, 2015
75. University of Kansas, Lawrence, KUMU PDE, Dynamical Systems and Applications Talk: "The Morse and Maslov Indices for Schrödinger Operators", April 18-19, 2015
76. University Kansas, Lawrence. Computational & Applied Mathematics Seminar. Talk: "Counting spectrum via the Maslov index for Schrödinger operators", November 2015
77. The 1st Annual Meeting of SIAM Central States Section, Talk:"The Morse and Maslov Indices for Schrödinger Operators", April 11-12, 2015
78. University of Missouri, Columbia. Differential Equations Seminar. Talk:"The Morse and Maslov Indices for Schrödinger Operators", December 2014
79. The 34th Southeastern-Atlantic Regional Conference on Differential Equations. Talk: "The Morse and Maslov Indices for Periodic Schrödinger Operators", October 11–12, 2014
80. University of Missouri. Differential Equations Seminar. Talk: "A Bound for the Eigenvalue Counting Function for Higher-Order Krein Laplacians on Open Sets", May 2014
81. Heinrich-Fabri Institut, Blaubeuren, Germany. Operator Semigroups and Dispersive Equations. Talk: "A Spectral Mapping Theorem for Nonlinear Schrodinger Equation" June 9-15, 2013

Workshops and Visits

1. ICERM, Brown University, Algebraic Geometry in Spectral Theory, February 24-26, 2023,
2. Institut Henri Poincare, Paris, France, Stability of Nonlinear Waves: Analysis and Computation, July 1-5, 2019
3. BIRS FRG Workshop, Banff, Canada. "Stability Indices for Nonlinear Waves and Patterns in Many Space Dimensions", June 17–24, 2018
4. AIM SQuaRE, San Jose, CA. "Applications of the Maslov index to multidimensional stability problems", June 20–24 2016
5. University of North Carolina, Chapel Hill, research visit by invitation of Prof. C. K. R. T. Jones, January 2015

6. University of Montreal, Canada. Frontiers in Mathematical Physics. In honor of Barry Simon's 70th birthday, August 28–September 1, 2016
7. The Fields Institute, Toronto, Canada. Conference on Methods of Modern Mathematical Physics, August 22-26, 2016
8. University of Montreal, Canada. Geometric and Computational Spectral Theory. June 15-26, 2015
9. University of Pisa, Italy, Di Giorgi Center. Stability of Solitary waves. May 15–31, 2014

Teaching and course development

At Auburn University:

- Spring 2025, MATH 7970, Special Topics on Mathematical Foundations of Topological Insulators, (3 credit hours), graduate level course
- Spring 2025, MATH 2650, Linear Differential Equations (3 credit hours)
- Fall 2024, MATH 2630, Calculus 3 (Sections R10-R18) (5 credit hours)
- Spring 2024, MATH 7450, Partial Differential Equations II, (3 credit hours) graduate level course
- Fall 2024, MATH 7440, Partial Differential Equations I (3 credit hours), graduate level course
- Fall 2024, MATH 2650, Linear Differential Equations, (3 credit hours)
- Spring 2023, MATH 7210, Real Analysis II (3 credit hours), graduate level course
- Fall 2022, MATH 7200, Real Analysis I (3 credit hours), graduate level course.
- Fall 2022, MATH 7450, Partial Differential Equations II (3 credit hours), graduate level course
- Fall 2021, MATH 1617, Section 111, Honors Calculus I (4 credit hours)
- Fall 2021, MATH 7440, Partial Differential Equations I (3 credit hours), graduate level course.
- Spring 2021, MATH 2637, Section 090, Honors Calculus III (4 credit hours)
- Fall 2020, MATH 1617, Section 120, Honors Calculus I (4 credit hours)
- Fall 2020, MATH 1617, Section 090, Honors Calculus I (4 credit hours)

Developed a new course: "Math 2670 Intro to Differential Equations", jointly with Drs. Glotov, Lin, Shen, Zalik,

At Rice University:

- Spring 2020, MATH 211, Section 01, Ordinary Differential Equations (3 credit hours)
- Spring 2020, MATH 211, Section 04, Ordinary Differential Equations (3 credit hours)
- Fall 2019, MATH 381, Introduction to Partial Differential Equations (3 credit hours)
- Fall 2019, MATH 499, Undergraduate research course (1 credit hour)
- Spring 2019, MATH 499, Undergraduate research course (1 credit hour)
- Spring 2019, MATH 514/424, Topics in Partial Differential Equations (3 credit hours)
- Spring 2019, MATH 212, Section 07, Multivariable Calculus (3 credit hours)
- Spring 2018, MATH 321, Introduction to analysis (3 credit hours)
- Spring 2018, MATH 211, Section 02, Ordinary Differential Equations (3 credit hours)

- Fall 2017, MATH 211, Section 03, Ordinary Differential Equations (3 credit hours)
- Fall 2017, MATH 321, Introduction to analysis (3 credit hours)

At the University of Missouri, Columbia:

- [TA] Advanced Calculus of One Real Variable I: Spring 2014, Fall 2016, Spring 2017.
- [TA] Analytic Geometry and Calculus I: Fall 2013, Spring 2014, Fall 2014, Fall 2015, Spring 2017.
- [TA] Calculus II: Spring 2015, Spring 2016, Fall 2016.

Outreach

- April 22, 2023, Science Olympiad at Auburn University, Event Coordinator
- October 21, 2021. Served as a judge at Three Minute Thesis Competition
- June 5, 2021. Served on Career Development Panel, 5th Great Lakes Mathematical Physics Meeting
- March 29 - April 2, 2021. Served as a judge at Auburn Research 2021 Student Symposium
- March 30-31, 2021. Served as a judge at Greater East Alabama Regional Science and Engineering Fair (GEARSEF) (Senior Devision 9-12 grades, Category: Computer Science and Mathematics)

Miscellaneous

Citizenship	Ukrainian; U.S. permanent resident
DOB	August 5, 1990