

## Anastasiia Tsvietkova

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### Appointments

#### *Continuing*

Associate Professor, tenured, Rutgers University, Newark, NJ, USA 05/2023 – present

Assistant Professor, tenure-track, Rutgers University, Newark, NJ, USA 09/2016 – 05/2023

#### *Temporary or Past*

Member, Institute of Advanced Study, Princeton Fall 2023

Visiting Researcher, Sydney Mathematical Research Institute, Australia 07/2023-09/2023

Von Neumann Fellow and member, Institute of Advanced Study, Princeton 09/2020 – 08/2021

Assistant Professor and Head of Geometry and Topology of Manifolds Unit, OIST (research institute), Japan 09/2017 – 08/2020

Krener Assistant Professor (non t.-track), University of California, Davis 01/2014 – 08/2016

Postdoctoral Fellow, ICERM, Brown University (Semester program in Low-dimensional Topology, Geometry, and Dynamics) Fall 2013

NSF VIGRE Postdoctoral Researcher, Louisiana State University 08/2012 – 08/2013

### Education

PhD in Mathematics, University of Tennessee, 05/2012, distinguished by Grad. Academic Achievement Award  
Thesis: *Hyperbolic structures from link diagrams*. Advisor: Morwen Thistlethwaite.

Master's degree with Honors in Applied Mathematics, Kiev National University, Ukraine, 07/2007  
Thesis: *Decomposition of cellular balleans into direct products*. Advisor: Ihor Protasov.

Bachelor's degree with Honors in Applied Mathematics, Kiev National University, Ukraine, 05/2005  
Thesis: *Asymptotic Rays*. Advisor: Ihor Protasov. GPA 5.0/5.0

**Research Interests:** low-dimensional topology and geometry, computational topology, knot theory, hyperbolic geometry

### Academic Honors, Grants and Other Funding

- Rutgers Board of Trustees Research Fellowship for Scholarly Excellence, 2023
- NSF CAREER grant "*CAREER: 3-manifolds with finite volume, their geometry, representations, and complexity*", DMS-2142487, \$467,237, 2022-present
- NSF grant (sole PI), *Geometry, Topology and Complexity of 3-manifolds*, DMS-2005496, \$213,906, 2020-present
- NSF grant (sole PI), *Hyperbolic Structures from Link Diagrams*, DMS-1406588, \$113,000, 2014-2019
- Okinawa Institute of Science and Technology research unit funding (sole PI), *Geometry and Topology of Manifolds unit*, ~\$660,000, 2016-2019
- NSF conference grant (co-PI with Joel Hass), DMS-1758107, \$17,000, 2017-2018
- Conference grants (x 2) from Okinawa Institute of Science and Technology (sole PI), ~\$127 000, for a workshop and a mini-symposium, 2018
- NSF-AWM Mathematics Mentoring Travel Grant recipient (the grant funded research visits to the University of Oxford), \$5,000, 2013
- Geometric Structures and Representation Varieties (GEAR) member. GEAR was funded by the NSF grant DMS-1107452, to bring together researchers from US, Canada, Europe and Asia. Individual subawards: 12/2012, research visit to Columbia University; 10/2015, research stay at Institute of Advanced Study, Princeton.
- USTARS Distinguished Graduate Student Award, 04/2012
- American Math. Society Travel Grants recipient, 10/2011 and 01/2012
- AWM Travel Grant recipient, 01/2012
- University of Tennessee Travel Awards, 01/2011 and 05/2011
- University of Tennessee Science Alliance Fellowship, 2006-2008, 2009-2011
- A winner of the Microsoft Imagine Cup competition, Software design category, Ukraine, 2006
- Presidential Fellowship for exceptional undergraduate students (full scholarship covering tuition, fees, housing and stipend; 100 per year are awarded throughout Ukraine), Ukraine, 2001-2005
- Placed 1st, 2nd and 3rd in Math Olympiads and Junior Academy of Sciences competitions in Ukraine in different years, 1998-2001

## Papers and Preprints (all published ones are peer-reviewed; authors are listed in alphabetical order)

1. *Polynomial bounds for surfaces in alternating link complements in 3-manifolds*, with J. Purcell, preprint, <https://arxiv.org/abs/2311.08567>
2. *Standard position for surfaces in link complements in arbitrary 3-manifolds*, with J. Purcell, pending revisions in *Algebraic & Geometric Topology*, 27 pp., <https://arxiv.org/abs/2205.06368>
3. *Random meander model for links*, with N. Owad, pending revisions in *Discrete & Computational Geometry*, 18 pp., <https://arxiv.org/abs/2205.03451>
4. *NP-hard problems naturally arising in knot theory*, with D. Koenig, *Trans. Amer. Math. Soc. Ser. B* 8 (2021), 420-441
5. *Tangle decompositions of alternating link complements*, with J. Hass and A. Thompson, *Illinois J. Math.* 65 (2021), no. 3, 533–545
6. *Unlinking, splitting, and some other NP-hard problems in knot theory*, with D. Koenig, *Proceedings of the 2021 ACM-SIAM Symposium on Discrete Algorithms (SODA)*, SIAM (2021), 1496--1507
8. *Alternating links have at most polynomially many Seifert surfaces of fixed genus*, with J. Hass and A. Thompson, *Indiana Univ. Math. J.* 70 (2021), no. 2, 525-534
9. *Simplicial volume of links from link diagrams*, with O. Dasbach, *Mathematical Proceedings Cambridge Philosophical Society* 166 (2019), no. 1, 75–81
10. *Determining isotopy classes of crossing arcs in alternating links*, *Asian Journal of Mathematics*, Vol. 22, No. 6 (2018), 1005-1024
11. *The number of surfaces of fixed genus in an alternating link complement*, with J. Hass and A. Thompson, *International Mathematics Research Notices* 6 (2017), 1611-1622
12. *Intercusp geodesics and the invariant trace field of hyperbolic 3-manifolds*, with W. Neumann, *Proceedings of the American Mathematical Society* 14 (2016), No. 2, 887-896
13. *A refined upper bound for the hyperbolic volume of alternating links and the colored Jones polynomial*, with O. Dasbach, *Mathematical Research Letters* 22 (2015), No. 4, 1047-1060
14. *Exact volume of hyperbolic 2-bridge links*, *Communications in Analysis and Geometry* 22 (2014), No. 5, 881-896
15. *An alternative approach to hyperbolic structures on link complements*, with M. Thistlethwaite, *Algebraic & Geometric Topology* 14 (2014), 1307-1337
16. PhD thesis: *Hyperbolic Structures from Link Diagrams*, University of Tennessee (2012), 77 pp.
17. *Decomposition of Cellular Balleans*, with I. Protasov, *Topology Proceedings* 36 (2010), 77-83
18. *Asymptotic Rays*, with O. Kuchaiev, *International J. of Pure and Applied Math.* 56, No. 3 (2009), 353-358

## In Preparation (available upon request)

19. *PSL(2, C)-representations of knot groups from knot diagrams*, with K. Petersen, 50-page preprint
20. *On bit-computability and its extensions of DISCRETE-FREE SUBGROUP of PSL(2, R) problem*, with J. Gilman, preprint
21. *Polynomially many surfaces in terms of hyperbolic volume in a 3-manifold*, with M. Lackenby, preprint
22. *Unknotting number problem is NP-hard*, with J. Bae, preprint

## Selected Software

23. *Hyperbolic structures from alternating link diagrams*. Implementation of an alternative method for computing hyperbolic structures of alternating links with small regions. Written in C++. <https://sites.rutgers.edu/anastasiia-tsvietkova/research/>
24. *Hyperbolic structures from link diagrams*, with D. Koenig and A. Lowen. A more general version of the above, for links with any region size, including non-alternating links. Written in Python, can be integrated with SnapPy. Now in the final stages of testing, to be posted on CompuTop.org.
25. *Computing invariant trace field from a link diagram, with no approximation involved*. Worksheet that gives the polynomial for the invariant trace field of a hyperbolic 2-bridge link. Written in Mathematica. <https://sites.rutgers.edu/anastasiia-tsvietkova/research/>
26. *Footstep*, with O. Kuchaiev, P. Protasyk, P. Shelyazhenko. Software system written as part of Microsoft Imagine Cup competition, placed first in Ukraine in 2006.

## Research Talks

### Invited Conference Talks

- BIRS workshop “Knots informed by random models and experimental data”, Banff, Canada, 04/2024
- Foundations of Computational Mathematics FoCM’23, Sorbonne Université, Paris, France, 06/2023
- Low-dimensional Topology workshop, MFO Oberwolfach, Germany, 01/2023
- Sage Days Duluth, University of Minnesota Duluth (I had to cancel the talk), 06/2022
- "Computational Aspects of Discrete Subgroups of Lie Groups" workshop (virtual), ICERM, Brown, 06/2021

- ACM-SIAM Symposium on Discrete Algorithms SODA (virtual), 01/2021
- Foundations of Computational Mathematics conference FoCM'20 (cancelled due to pandemic), Simon Fraser University, Canada, 06/2020
- Redbud Topology conference (an invited talk and a lecture for students), University of Arkansas, 3/2020
- Low-dimensional Topology workshop (a short talk), MFO, Oberwolfach, Germany, 2/2020
- Computational Problems in Low-dimensional Topology II, OIST, Japan, 4/2019
- Low dimensional topology and number theory XI, Osaka University, Japan, 3/2019
- Classical and Quantum 3-Manifold Topology workshop, Monash University, Australia, 12/2018
- ThompScharby Fest, UC Berkeley, USA, 7/2018
- Redbud Topology Conference (cancelled by me due to sickness), Oklahoma State University, 4/2018
- Ryukyu Knot Theory workshop, Naha, Okinawa, Japan, 1/2018
- "New developments in Teichmüller space theory" mini-symposium, OIST, Japan, 11/2017
- 51<sup>st</sup> Spring Topology and Dynamic Conference, NJ, Session on Geometric Topology, 3/2017
- Redbud Triangulations conference, Oklahoma State University, OK, 11/2016
- Knots in Hellas, Ancient Olympia, Greece, 7/2016
- Chico Topology Conference, California State University, Chico, 5/2016
- Workshop on Geometric Structures on 3-Manifolds, IAS, Princeton, 10/2015
- The Thin Manifold conference, University of Iowa, 8/2014
- International Meeting RSME-SCM-SEMA-SIMAI-UMI, Bilbao, Spain, Session on Geometric Topology, 7/2014
- Low dimensional topology, knots, and orderable groups, CIRM, Luminy-Marseille, France, 7/2013
- Low-dimensional Topology and Geometry in Toulouse, Toulouse Mathematics Institute, 6/2013
- Knots in Washington XXXIV, session on Geometric Aspects of Knot Theory, GWU, 12/2012
- GEAR Network Retreat, University of Illinois, Urbana-Champaign, 8/2012
- Moab Topology Conference, Utah State University, Moab, 5/2012
- USTARS, University of Iowa, Distinguished Graduate Student talk, 4/2012
- 46th Spring Topology and Dynamics, Low-dimensional Topology Session, Universidad Nacional Autónoma de México, Mexico, 3/2012
- Knots in Washington XXXIII, George Washington University, 12/2011
- Geometric Topology of Knots Workshop, Centro di Ricerca Matematica, Pisa, Italy, 5/2011
- 12th Chico Topology Conference, California State University, Chico, 6/2010

***Invited Talks at American Math. Soc. (AMS) or Joint Math. Meetings (JMM) (SS is Special Session)***

- AMS meeting, University at Buffalo, SS From Classical to Quantum Low-Dimensional Topology (I had to cancel the talk), 09/2023
- JMM, Boston, SS on Unknotting Operations (I had to cancel the talk), 01/2023
- AMS Meeting (virtual), Purdue University, SS on Optimization, Complexity, and Real Algebraic Geometry, 03/2022
- AMS Meeting, University of Virginia, SS on Knots and Links in Low-Dimensional Topology, 03/2022 (meeting cancelled due to the pandemic)
- JMM (virtual), SS on Geometry and Topology in Dimensions 3 and 4, 01/2021
- AMS meeting (virtual), Penn State University, SS on Geometry of Groups and 3-manifolds, 10/2020
- AMS meeting (cancelled due to the pandemic), CSU Fresno, SS on Algorithms in the Study of Hyperbolic 3-manifolds, 05/2020
- AMS meeting (cancelled due to the pandemic), CSU Fresno, SS on Complexity in Low dimensional topology, 05/2020
- JMM, Denver, Colorado, SS Women in Topology, 1/2020
- AMS Meeting, Bowdoin College, Maine, SS on Decomposing 3-manifolds, 9/2016
- AMS Meeting, CSU Fullerton, SS on Algebraic and Combinatorial Structures in Knot Theory, 10/2015
- AMS Meeting, University of Nevada, Las Vegas, SS on Knots and 3-manifolds, 4/2015
- AMS Meeting, University of Tennessee, SS on Number Theory and Topology, 3/2014
- AMS Meeting, Washington University, St. Louis, SS on Geometric Aspects of 3-Manifold Invariants, 10/2013
- AMS Meeting, Temple University, PA, SS on Geometric topology of knots and 3-manifolds, 10/2013
- AMS Meeting, Tulane University, New Orleans, SS on Combinatorial Methods in Knot Theory, 10/2012

***Invited Colloquia Talks***

- University of Queensland (through Zoom), 2/2023
- University of South Florida, 1/2023

- University of Miami, 2/2021
- Math Conversations, Institute of Advanced Study, Princeton, 2/2021
- University of Melbourne, Australia, 2/2018
- University of Auckland, New Zealand, 11/2017
- Monash University, Melbourne, Australia, 4/2016
- University of Sydney, Australia, 3/2016
- University of Queensland, Brisbane, Australia, 2/2016
- Dartmouth College, New Hampshire, 2/2016
- Rutgers University, Newark, New Jersey, 2/2016
- Oklahoma State University, Oklahoma, 2/2016
- California State University, Chico, 2/2016
- Okinawa Institute and Science and Technology, Japan, 1/2016
- New College of Florida, Florida, 11/2015
- Brigham Young University, Utah, 10/2014
- Women Advancing Arizona Mathematics Colloquium, University of Arizona, 3/2014
- University of Louisiana, Lafayette, 1/2013

#### ***Invited Seminar Talks***

IAS, "What is ...?" seminar, 12/2023	University of Queensland, Australia 07/2023
University of Sydney, Australia 08/2023	Princeton University 04/2023
Michigan State University 11/2021 and 11/2015	University of Oklahoma 10/2021
IAS Member seminar, Princeton, 12/2020	Australian Geometric Topology Webinar 10/2020
CUNY Graduate Center 4/2020, 12/2016, and 12/2012	Rutgers New Brunswick 2/2020 and 10/2016
University of Tokyo, Japan, 2/2019	AIMR, Tohoku University, Japan, 4/2018
Monash University, Australia, 2/2018	University of Osaka, Japan, 12/2017
PATCH (Bryn Mawr, Haverford, Penn, and Temple) 03/2017	GEAR seminar at Rutgers, Newark, 1/2017
California Institute of Technology 12/2015	University at Buffalo (SUNY) 11/2015
University of California, Los Angeles, 10/2015	University of South California 10/2015
University of California, Davis, 10/2015, 6/2015, and 2/2014	Columbia University 10/2015 and 9/2011
Temple University topology seminar, 09/2015	Stanford University 10/2014
Brigham Young University 10/2014 and 11/2011	University of Texas, Austin 09/2014 and 10/2011
University of California, Santa Barbara 02/2014	Brown University topology seminar, 12/2013
ICERM 11/2013	LSU /U Iowa/UPenn /U Memphis/U Ark 09/2012
University of Virginia 01/2012	University of Tennessee 02/2011

#### **Supervising postdocs**

A postdoctoral mentor (sponsoring scientist) for an NSF Postdoctoral Fellowship application with Rutgers-Newark as a host institution for one postdoc, in 2023, and again in 2024

A faculty mentor and contact for seven postdocs from different research areas working at IAS and Princeton Mathematics Department, 2020-2021:

- Lisa Sauermann, IAS member (PhD from Stanford)
- Vijay Bhattiprolu, Founders' Circle Member at IAS (PhD from Carnegie Mellon)
- Tony Feng, Friends of the IAS Member (PhD from Stanford)
- Francois Grier, IAS member (PhD from Stanford)
- Linyuan Liu, Minerva Research Foundation Member at IAS (PhD from Sorbonne)
- Salim Tayou, Giorgio and Elena Petronio Fellow (PhD from Université Paris-Sud)
- Clark Butler, Veblen Research Instructor at IAS and Princeton Math. Dept. (PhD from University of Chicago)

Supervised five postdocs working in topology and geometry at OIST in my role as a Head of Geometry and Topology of Manifolds group, 2017-2019:

- Dale Koenig, postdoctoral researcher (PhD from UC Davis 2017)
- Nicholas Owad, postdoctoral researcher (PhD from University of Nebraska 2016)
- Robert Tang, postdoctoral researcher (PhD from University of Warwick 2013)
- Tirasan Khandawit, postdoctoral researcher (PhD from MIT 2013)
- Linling Ru, postdoctoral visitor (PhD from University of Warwick 2014)

#### **Supervising graduate students**

- PhD thesis adviser for Touseef Haider and Jaeyun Bao at Rutgers-Newark, both expected to graduate in 2024-2025
- Alex Lowen, my research associate for a semester project, tuition and salary paid from my NSF grant, Rutgers-Newark

- PhD thesis committee member for Alex Lowen, 2023
- Co-supervised Thomas Burns (neuroscience student) through lab rotation system, OIST, Japan, Spring 2018
- A faculty mentor for graduate student Lorinda Leshock from University of Delaware through AWM mentor network, Fall 2016-Spring 2017
- Joint research/mentoring through NSF Vertical Integration of Research and Education: Kimberly S. D'Souza, Daniel Guillot, Ying Hu, Jun Peng, Chris Penn at Louisiana State University, Fall 2012 and Spring 2013.

#### **Supervising undergraduate students**

- Mason Moran from Michigan Technological University, through Summer Undergraduate Research Institute at Rutgers-Newark, summer 2024
- Xiao Chen, Rutgers University Newark, summer 2022
- Silvia Jaramillo-Regalado at Rutgers-Newark, summer 2020, through NSF-funded Garden State LS Alliance for Minority Participation, 2021
- Felipe Castellano-Macias, Northeastern University, internship at OIST, Japan, in Spring and Summer 2019
- Robert Hanson, University College London, internship at OIST, Japan, Summer and Fall 2018
- Ruying Bao, University of California, Davis, Winter, Spring and Fall 2014  
Currently a graduate student in Applied Mathematics, Princeton University.
- Sarah Seger at Louisiana State University, Fall 2012 and Spring 2013. Later completed PhD in Math at Rice.

#### **Other Selected Professional Activities and Services**

##### ***Conference co-organization***

- BIRS workshop “Knot theory informed by random models and experimental data”, Canada, 4/2024
- Two international workshops at Rutgers, Newark, NJ, sponsored by NSF CAREER grant:
  - (1) Computational Problems in Low-Dimensional Topology III, 4/2023
  - (2) Interactions between low-dimensional topology and computer science, tentatively 2025
- Computational Problems in Low-dim. Topology I and II mini-symposiums, 3/2018 and 4/2019, OIST, Japan
- Geometry and Topology of 3-manifolds workshop, 05/2018, OIST, Japan
- Invariants in Low-dimensional Topology Special Session at the AMS Meeting, New York, 05/2017
- Geometry, Topology and Complexity of Manifolds, and Applications to Biology (Joelfest), UC Berkeley 05/2016
- Knots and 3-manifolds Special Session at the AMS Meeting, Las Vegas, NV, 04/2015

##### ***Colloquia/seminar co-organization***

- Distinguished Lectures in Topology and Geometry at Rutgers, Newark, sponsored by NSF CAREER grant, 2023-2027
- Geometry, Topology and Dynamics seminar at OIST, Japan, Fall 2017 – Spring 2019. (The seminar had many international as well as Japan-based speakers.)
- Faculty lunch seminar at OIST, Japan, 2018
- Mathematics Colloquium, Rutgers University, Newark, Fall 2016-Spring 2017
- GEAR seminar in Teichmüller theory at Rutgers University, Newark, Fall 2016-Spring 2017
- Low-dimensional topology and geometry reading seminar for graduate students, UC Davis, 2014

##### ***Reviewer/Referee/Panelist***

- Served on NSF grant panels in different years, reviewer for NSF proposals
- Reviewer for UKRI proposals
- Referee for journals: Journal of the London Mathematical Society, Proceedings of American Mathematical Society, Algebraic and Geometric Topology (x6), Communications in Analysis and Geometry (x2), Geometriae Dedicata (x2), Journal of Knot Theory and Ramifications, Experimental Mathematics, Michigan Math. Journal, Journal of Differential Geometry, New York J. of Mathematics
- Referee for Computer Science conferences: WG 2020 (International Workshop on Graph-Theoretic Concepts in Computer Science), STOC 2021 (ACM Symposium on Theory of Computing)
- Reviewer for MathSciNet

##### ***Selected University Committees/Initiatives***

*At Rutgers, Newark (2016-2022):* university library committee; library liaison for the department; participated in the search for the Vice President of University Libraries and University Librarian; participated in faculty hiring in mathematics; co-developed course curriculum for a new undergraduate course at the department (History of Mathematics), now regularly offered; developed course curricula for some of the undergrad. and grad. courses I taught.

*At OIST, Japan (2017-2019):* developed a proposal for international visiting faculty program; participated in mathematics hiring initiative aimed to create international faculty group in mathematics; library committee; conference and workshop committee (reviewing conference proposals and making funding recommendations); computer science

hiring committee; mathematics hiring committee; developed new graduate courses curricula; oversaw teaching by postdocs of mathematics graduate courses.

### ***Work with high school students***

- Helped to organize California State Summer School for Math and Science for talented high school students, Summer 2015 (included teaching a course)
- Helped to organize the UT Pro2Serve Math Contest for talented high school students, annually 2006-2011
- Helped to organize and conduct Math Olympiads for high school students in Ukraine, annually 2001-2006

### ***Broadening participation of underrepresented groups***

- Panelist/lunch discussion organizer for Women and Mathematics event for students and junior mathematicians at IAS, Princeton, 2021.
- A faculty mentor for students and junior mathematicians through Association for Women in Mathematics network and through Garden State Alliance for Minority Participation program at Rutgers.
- A third of students and postdocs I supervised (listed above) were from groups underrepresented in mathematics.
- Gave invited talks for broad mathematics audience at Association of Women in Mathematics events, Women Advancing Arizona Mathematics Colloquium, Underrepresented Students in Topology and Algebra Research symposium.
- One of the goals of Distinguished Lectures at Rutgers mentioned above (that I will organize) is to showcase the work of mathematicians from underrepresented groups

### ***Teaching-related***

- Mentor for a new graduate teaching assistant, University of Tennessee, Fall 2011
- Completed "The Best Practices in Teaching" program, The University of Tennessee, Fall 2006

## **Teaching Experience**

### ***Rutgers University, Newark***

- *Probability and Statistics for Engineers and Scientists*, undergraduate course, Spring 2023
- *The Shape of Space*, undergraduate course, Fall 2022
- *Hyperbolic Knot Theory*, graduate course, Fall 2022
- *Advanced Calculus II* (12 students), Spring 2022
- *Applied Calculus*, large (150 students) and small (30 students) lectures, Fall 2021
- *Geometry, Topology and Complexity of 3-manifolds* graduate course, Spring 2020
- *Foundations of Modern Mathematics* (25 students), Fall 2019
- *Knot Theory* (25 students), undergraduate course, Spring 2017
- *Calculus II* (30 students), Fall 2016

***OIST, Japan.*** Co-instructor (with postdocs) on graduate special topics courses:

- *Hyperbolic Geometry*, Spring 2018
- *Algebraic Topology II*, Spring 2018
- *Geometry and Topology Seminar II*, Spring 2018
- *Intro to Topology and Algebraic Topology*, Fall 2017
- *Geometry and Topology Seminar I*, Fall 2017

Additionally, co-instructor on 3 individual study courses for graduate students.

### ***University of California, Davis***

- *Geometric Topology (graduate course)*, Spring 2016
- *Topology*, Spring 2016
- *Euclidean and non-Euclidean geometry*, about 60 third and fourth-year students, Winter 2016
- *History of Mathematics*, about 65 third and fourth-year students, Winter 2016
- *Hyperbolic 3-manifolds*, graduate course, Spring 2015
- *Mini-course on hyperbolic geometry*, California State Summer School for Math and Science, 07/2015
- *Calculus III*, instructor (a large lecture, about 100 second and third-year students), Spring 2014
- *Calculus II*, instructor (a large lecture, about 100 first and second-year students), Spring 2014
- *Real Analysis III*, instructor, about 45 fourth-year students, Winter 2014

### ***Louisiana State University***

- *VIGRE Research Seminar: Algorithms in Knot Theory II*, co-instructor, Spring 2013
- *VIGRE Research Seminar: Algorithms in Knot Theory I*, co-instructor, Fall 2012
- *History of Mathematics*, Spring 2013
- *Calculus I and Analytic Geometry*, Fall 2012

### ***University of Tennessee***

- *Statistical Reasoning*, Spring 2012

- *Calculus II*, Fall 2011, Spring 2011 and Fall 2010
- *Matrix Algebra*, teaching assistant, Fall 2011
- *Calculus I*, Spring 2010 and Fall 2009
- *Finite Mathematics*, Spring 2009
- *Precalculus*, Fall 2008
- *Basic Calculus*, instructor in Spring 2008; teaching assistant in Spring and Fall 2007
- *College Algebra*, teaching assistant, Fall 2006

**Selected Conference/Workshop Participation** (by invitation)

- Perspectives on Dehn Surgery, ICERM, Brown University, 07/2019
- PIMS Symposium on Geometry and Topology of 3-manifolds, University of British Columbia, Canada, 07/2015
- Groups, Geometry and 3-manifolds, University of California, Berkeley, 05/2014
- Wasatch Topology Conference, Park City, Utah, 08/2014
- Geometric Topology in Cortona INdAM Meeting, Italy, 06/2013
- The Topology of 3-dimensional Manifolds, Centre de Recherches Mathématiques, Montréal, Canada, 05/2013
- Recent Progress on Hyperbolic 3-Manifolds, University of Michigan, Ann Arbor, 05/2012
- Geometry and Topology Down Under, University of Melbourne, Australia, 08/2011

**Professional Memberships:** American Mathematical Society, Association of Women in Mathematics

**Personal Information:** US citizen; previously a citizen/resident of Ukraine, Lithuania, Japan

**Leaves:** parental leaves in 2015 and 2020

**References** (in alphabetical order):

Oliver Dasbach, Louisiana State University, Professor and Department Chair, kasten@math.lsu.edu  
 David Futer, Temple University, Professor, dfuter@temple.edu  
 David Gabai, Princeton University, Hughes-Rogers Professor of Mathematics, gabai@math.princeton.edu  
 Cameron Gordon, UT Austin, Professor and Sid W. Richardson Foundation Regents Chair, gordon@math.utexas.edu  
 Joel Hass, UC Davis, Distinguished Professor, hass@math.ucdavis.edu  
 Efstratia Kalfagianni, Michigan State University, Professor, kalfagia@math.msu.edu  
 Jessica Purcell, Monash University, Professor and Associate Dean of Research, jessica.purcell@monash.edu  
 Alan Reid, Rice University, Edgar Odell Lovett Professor and Department Chair, alan.reid@rice.edu  
 Jennifer Schultens, UC Davis, Professor (teaching reference), jcs@math.ucdavis.edu  
 Abigail Thompson, UC Davis, Distinguished Professor, thompson@math.ucdavis.edu