

Anastasiia Tsvietkova

US Status: Permanent resident (Green Card, eligible to work in the US)

Contact Information:

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Education

- PhD in Mathematics, University of Tennessee, Knoxville, May 2012.
Advisor Prof. Morwen Thistlethwaite.
Thesis *Hyperbolic structures from link diagrams*.
- Master's degree with honors in Applied Mathematics, Kiev National University, Ukraine, July 2007.
Advisor Prof. Ihor Protasov.
Thesis *Decomposition of cellular balleans into direct products*.
- Bachelor's degree with honors in Applied Mathematics, Kiev National University, Ukraine, June 2005.
Advisor Prof. Ihor Protasov.
Thesis *Asymptotic Rays*.

Employment

- VIGRE postdoctoral researcher, Louisiana State University, Baton Rouge, starting 8/2012
- Graduate Teaching Associate, University of Tennessee, Mathematics Department, 8/2007-8/2012
- Graduate Teaching Assistant, University of Tennessee, Mathematics Department, 8/2006-8/2007

Research Interests

Geometric Topology

Low-dimensional manifolds

Hyperbolic geometry

Knot theory

Geometric group theory

Topological graph theory

Refereed Journal Publications and Preprints

- *Decomposition of Cellular Balleans*, with I. Protasov, *Topology Proceedings* 36 (2010), 77-83
Abstract. We consider groups as coarse structures (equivalently, as balleans), and investigate the question of classification of uncountable groups up to coarse equivalence. We prove that any two uncountable groups of regular cardinality are coarsely equivalent.
- *Asymptotic Rays*, with O. Kuchaiev, *International Journal of Pure and Applied Mathematics* 56, No. 3 (2009), 353-358
Abstract. We consider graphs as coarse structures (equivalently, as balleans), and give the necessary and sufficient conditions for a tree to be coarsely equivalent to a ray (i.e. to a graph where the valence of every vertex is 2).
- *An alternative approach to hyperbolic structures on link complements*, with M. Thistlethwaite, submitted to *Algebraic & Geometric Topology*, ArXiv: math.GT/1108.0510v1
Abstract. An alternative method is described for determining the hyperbolic structure on a link complement, and some of its simple consequences are examined. The method is based on ideal polygons bounding the regions of a diagram of the link rather than decomposition of the complement into ideal tetrahedra.
- *Volume of 2-bridged links*, in preparation, <http://www.math.utk.edu/~tsvietkova/abstract.html>
Abstract. We obtain formulas that allow one to calculate hyperbolic and complex volume of a hyperbolic 2-bridged link directly from its diagram.

Published Conference Proceedings

- *Cellular Balleans Decomposable into Direct Products*, with I. Protasov, Proc. of 4th Summer School in Alg. and Top., Lviv - Kozyova, Ukraine (2006), 162-165
- *Asymptotic Rays*, with O. Kuchaiev, Proc. of 3rd Summer School in Alg. and Top., Lviv - Kozyova, Ukraine (2005), 140-141
- *Around Grasshopper Lemma*, with G. Kozyrev, O. Kuchaiev, Proc. of 2nd Summer School in Alg. and Top., Lviv - Dolyna, Ukraine (2004), 19-20

Research Talks

- AMS Fall Sectional Meeting, Tulane University, 10/2012
- GEAR Network Retreat, 08/2012
- Moab topology conference, 05/2012
- USTARS, Iowa city, Distinguished Scholar, *Hyperbolic link complements*, 04/2012
- 46th Spring Topology and Dynamics, low-dimensional topology section, Mexico city, *Hyperbolic structures from link diagrams*, 03/2012
- University of Virginia geometry seminar, *Hyperbolic link complements*, 01/2012
- AWM workshop, poster presentation, 01/2012
- Knots in Washington XXXIII, 12/2011, *An alternative approach to hyperbolic structures on link complements*
- Brigham Young University topology seminar, 11/2011, *An alternative approach to hyperbolic structures on link complements*
- University of Texas, Austin, topology seminar, 10/2011, *Hyperbolic structures on link complements*
- Columbia University geometric topology seminar, New York, 09/2011, *Hyperbolic knot and link complements*
- AMS sectional meeting at Wake Forest University, 09/2011, *Links and hyperbolic geometry*
- Geometric Topology of Knots Workshop, Pisa, Italy, 05/2011, *An alternative approach to hyperbolic structures on link complements*
- AMS Annual Meeting, New Orleans, 01/2011, *Investigating hyperbolic link complements*
- University of Tennessee topology seminar, Knoxville, 02/2011, series of talks about hyperbolic links
- 12th Chico Topology Conference, 06/2010, *Hyperbolic structures on alternating link complements*
- University of Tennessee, 04/2009, *The tilt formula*
- 4th Summer School in Algebra and Topology, Lviv - Kozyova, Ukraine, 07/2006, *Cellular balleans decomposable into direct products*
- 3rd Summer School in Algebra and Topology, Lviv - Kozyova, Ukraine, 08/2005, *Asymptotic rays*
- 2nd Summer School in Algebra and Topology, Lviv - Dolyna, Ukraine, 08/2004, *Around grasshopper lemma*

Honors and Support

- NSF support for attendees of RTG workshop ``Recent Progress on Hyperbolic 3-Manifolds'', 05/2012
- UTK Graduate Student Academic Achievement Award, 04/2012
- USTARS Distinguished Graduate Student Award, 04/2012
- Travel support for international attendees, of the 46th STDC, 03/2012
- University of Virginia travel support, 01/2012
- AMS Travel Grants, 10/2011 and 01/2012
- AWM Travel Grant, 01/2012
- Georgia Tech support for attendees of The Tech Topology Conference, 12/2011
- The George Washington University travel support for attendees of Knots in Washington, 12/2001
- BYU travel support, 11/2011
- University of Texas support for attendees of 46th Texas Geometry and Topology Conference, 10/2011
- Columbia University travel funding, 09/2011
- Invited attendee of Geometry and Topology Down Under workshop, University of Melbourne, Australia, 08/2011
- UTK Graduate Travel Award, 05/2011
- CRM funding for invited speakers of Geometric Topology of Knots workshop, Pisa, Italy, 05/2011
- UTK College of Arts and Sciences travel award, 01/2011
- UTK Science Alliance Fellowship, 2006-2008, 2009-2011
- Dorothea & Edgar D. Eaves Teaching Award, nominated annually 2006-2010
- Vanderbilt University travel funding, Spring 2008
- NSF support for selected attendees of the 41st Spring Topology and Dynamics Conference, 02/2007

- 1st place in Software design category, Microsoft Imagine Cup competition, Ukraine, 2006
- Presidential grant “Intellectual of the 21st Century” funding an undergraduate degree, Ukraine, 2001-2005 (less than 100 grants given annually to exceptional High School students from all disciplines in Ukraine)
- Annual winner of All-Ukrainian Mathematical Olympiad, 1997-2001
- Annual winner of All-Ukrainian Mathematical competition-presentation of Junior Academy of Science, 1998-2001

Teaching Experience

- Spring 2012 – lectures in *Statistical Reasoning*
Basic statistics: averages, variation, frequency distributions, estimation, hypothesis testing, regression and correlation.
- Fall 2011, Spring 2011 and Fall 2010 - lectures in *Calculus II*
Single variable calculus for students of science, engineering, mathematics, and computer science. Integral calculus with applications.
- Spring 2010 and Fall 2009 - lectures in *Calculus I*
Single variable calculus for students of science, engineering, mathematics, and computer science. Differential calculus with applications.
- Spring 2009 - lectures in *Finite Mathematics*
Exponential and logarithmic functions, interest and annuities, linear systems and matrices, optimization, basics of the game theory.
- Fall 2008 - lectures in *Precalculus*
Review of algebraic, logarithmic, exponential, and trigonometric functions.
- Spring 2008 - lectures in *Basic Calculus*. Spring and Fall 2007 - recitations in *Basic Calculus*
Calculus of algebraic, exponential, and logarithmic functions, with applications, mainly in business and finance.
- Fall 2006 - recitations in *College Algebra*
A review of algebraic functions, equations, and inequalities.

Professional Activities and Services

- Mentor in the mentoring program for new GTA's, Fall 2011
- AWM mentoring program participant, 2010-2011
- The Best Practices in Teaching program, The University of Tennessee, Fall 2006
- Helped in organizing the UT Pro2Serve Math Contest for High School Students, annually 2006-2011
- Helped in organizing and conducting Math Olympiads in Ukraine, annually 2001-2006

Professional Memberships: American Mathematical Society, Association for Women in Mathematics, Society for Industrial and Applied Mathematics

Additional Information

- Languages: English, Russian, Ukrainian, colloquial French
- C++ programming skills; extensive experience with scientific software (Matlab, Mathematica, Maple, Pari and other)

References

- Morwen Thistlethwaite, Mathematics Department, University of Tennessee, morwen@math.utk.edu
- Robert Daverman, Mathematics Department, University of Tennessee, daverman@math.utk.edu
- Marc Lackenby, Mathematical Institute, University of Oxford, lackenby@maths.ox.ac.uk
- Conrad Plaut, Mathematics Department, University of Tennessee, cplaut@math.utk.edu
- William Wade (concerns teaching), Mathematics Department, University of Tennessee, wade@math.utk.edu
- Charles Collins (concerns teaching), Mathematics Department, University of Tennessee, ccollins@math.utk.edu