Inna Zakharevich

Curriculum vitae

Contact Information

Department of Mathematics
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Fields of Interest

Algebraic topology, algebraic K-theory, scissors congruence, motivic integration

Employment

2016-present	Assistant Professor, LCP Ho Sesquicentennial Faculty Fellowship, Department of Mathematics, Cornell University, Ithaca, NY
2012-2016	L. E. Dickson Instructor, Department of Mathematics, University of Chicago, Chicago, IL
2013-2014	Member, Institute of Advanced Study, Princeton, NJ

Education

2008-2012	**Massachusetts Institute of Technology** Cambridge, MA Ph.D. in Mathematics, Dissertation: "Scissors congruence as K-theory" Advisor: Michael Hopkins
2006-2007	**Cambridge University** Cambridge, England, United Kingdom CASM ('part III' mathematics) with distinction
2002-2006	**Harvard University** Cambridge, MA AB, Magna cum laude in Mathematics

Awards, Grants and Scholarships

2016-2019	PI on NSF Division of Mathematical Sciences Award
2016-2017	LCP Ho Sesquicentennial Faculty Fellowship
2012-2016	NSF Mathematical Sciences Postdoctoral Research Program fellowship
2008-2011	NSF Graduate Student Fellowship
2006-2007	Gates Cambridge Fellow
2006	Elected to Phi Beta Kappa
2004	6th place Putnam competition

Papers, preprints and documents in preperation

(1) Zakharevich, Inna. "A Generalization of Wigner's law." *Comm. Math. Phys.*, vol 268, (2006), no. 2, pp. 403-414.
(2) Zakharevich, Inna. "Scissors Congruence as K-theory." *Homology, Homotopy and Applications*, vol 14, (2012) 1, pp. 181-202.
(3) Zakharevich, Inna. "Simplicial Polytope Complexes and Deloopings of K-theory." *Homology, Homotopy and Applications*, vol 15, (2013) 2 pp. 301-330.
(4) Droz, Jean-Marie and Zakharevich-Inna. "Model categories with simple homotopy categories." *Theory Appl. Categ*, vol 30 (2015). pp15-39.
(5) Bobkova, Irina, Lindenstrauss, Ayelet, Poirier, Kate, Richter, Birgit and Zakharevich, Inna. "On the higher topological Hochschild homology of $\mathbf{F}_p$ and commutative $\mathbf{F}_p$-group algebras." *Women in Topology: Collaborations in Homotopy Theory*, *Contemporary Mathematics*, vol 641 (2015), p97-122.
(6) Zakharevich, Inna. "The category of Waldhausen categories as a closed multicategory." arXiv: `http://arxiv.org/abs/1410.4834`. *To appear in Proceedings of Mid-Atlantic Topology Seminar.*
(7) Droz, Jean-Marie and Zakharevich, Inna. "Extending to a model category is not a first-order property." arXiv: 1410.6127. *Submitted.*
(8) Weibel, Charles and Zakharevich, Inna. "Principal ideals in mod-ℓ Milnor K-theory." arXiv: 1507.03035. *J. Homotopy Relat. Struct.*, col 12 (2017), 4 pp. 1033-1049.
(9) Zakharevich, Inna. "The K-theory of assemblers." *Advances in Mathematics*, vol 304 (2017). pp 1176-1218.
(10) Zakharevich, Inna. "The annihilator of the Lefschetz motive." Duke Math. J., Vol 166 (11), p1989-2022.
(11) Zakharevich Inna. "On K_1 of an assembler." J. Pure Appl. Algebra 221 (2017), no. 7, 1867-1898.
(12) Zakharevich, Inna. "Tensor products of assemblers." *in preparation*
(13) May, J. Peter, Stephan, Marc and Zakharevich, Inna. "The homotopy theory of equivariant posets." *Cah. Topol. Géom. Différ Catég.* 58 (2017), 2 pp. 82-114.
(14) Halliwell, Gemma, Höning, Eva, Lindenstrauss, Ayelet, Richter, Birgit and Zakharevich, Inna. "Relative Loday constructions and applications to higher THH calculations." *Women in Topology II: Further collaborations in homotopy theory*, *Topology and its Applications*, vol 235 pp. 523-545.
(15) Bobkova, Irina, Höning, Eva, Lindenstrauss, Ayelet, Poirier, Kate, Richter, Birgit and Zakharevich, Inna. "Splittings and calculational techniques for higher THH." arXiv:1808.05440.
(16) Zakharevich, Inna. "The derived Dehn invariant." *in preparation*
(17) Zakharevich, Inna. "Perspectives on scissors congruence." *Bull. Amer. Math. Soc.* 53 (2016), vol 2, p269-294.
(18) Campbell, Jonathan, Wolfson, Jesse and Zakharevich, Inna. "Derived ℓ-adic zeta functions." arXiv: 1703.09855.
(19) Campbell, Jonathan and Zakharevich, Inna. "CGW-categories." *in preparation*
(20) Campbell, Jonathan and Zakharevich, Inna. "Squares K-theory." *in preparation*
(21) Wickelgren, Kirsten and Zakharevich, Inna. "Constructing derived Euler characteristics inside Grothendieck–Witt groups." *in preparation*

Teaching Experience

Fall 2018	Math 6540: Homotopy theory
Spring 2018	Math 6510: Algebraic topology
Fall 2017	Math 2220: Multivariable calculus Math 6530: K-theory and Characteristic Classes

Fall 2016	Math 3320: Introduction to Number Theory
Spring 2016	Math 263: Undergraduate Algebraic Topology
Winter 2016	Math 262: Point-Set Topology
Summer 2015 Summer 2013	Co-teacher for algebraic topology section of Summer REU program
Winter 2015	Math 258: Honors Basic Algebra I-II
Spring 2013	Analysis in $\mathbf{R}^n$ (two sections)
Spring 2010 Spring 2009	Teaching assistant: 18.06: Linear Algebra
Summer 2007 Summer 2008	18.06: Linear Algebra
Fall 2009	Teaching assistant: 18.023: Multivariable Calculus with Applications (two sections)
2007-2012	Class leader in the Boston Math Circle *An after-school mathematics enrichment program for area children; I taught ages 8-12*
2008-2010	Resident tutor at Cabot House, Harvard University *A job combining the duties of a tutor and resident advisor with the duties of an academic advisor for a small number of students.*
Summer 2010 Winter 2010 Summer 2011 Winter 2014	Teacher at the IDEA Math Program *IDEA Math is an enrichment program for middle- and high-school students preparing to participate in olympiads.*
Summer 2010 Summer 2011	Coach, US Delegation to the China Girls' Math Olympiad
Summer 2012	Coach, US Delegation to the European Girls' Math Olympiad

Other Activities

2017-2019	Co-organizer for Cornell Topology Festival
2018	Founder of Ithaca Area K-2 math circle
2018	Scientific committee member for workshop on algebraic K-theory, satellite to ICM, Buenos Aires, Argentina.
2017	Co-teacher for DeWitt math club
2017	Co-organizer for first Northeast Topology Day
2017	Co-organizer for special session on algebraic topology at Fall 2017 AMS sectional meeting
2016	Organized and taught after-school mathematics enrichment activity "To infinity and beyond" at Cayuga Heights Elementary School

2016-2018	Scientific committee member for satellite session on algebraic K-theory at the 2018 ICM
2016	Co-organizer of and speaker in UChicago summer school in algebraic topology
2016	Co-organized and taught at algebraic topology summer school at University of Chicago
2014-2016	Co-organized algebraic topology seminar at University of Chicago
2015	Co-organized Midwest Topology Seminar conference
2014	Organized motivic integration reading group at University of Chicago, fall 2014.
2014	Organized and spoke in Goncharov reading group seminar at the IAS.
2011	Redesigned University of Chicago Algebraic Topology Seminar webpage.
2011	Redesigned MIT Topology Seminar webpage.

Conference talks

2009	"Topological Modular Forms", Workshop on Arithmetic Geometry in Kanazawa, Kanazawa, Japan.
2010	"Higher Scissors Congruence", Young Topologists Meeting, Copenhagen, Denmark.
2011	"Scissors Congruence as K-Theory", AMS Central Meeting Special Session on Algebraic K-Theory and Homotopy Theory, Iowa City, IA.
2011	"A Symmetric Monoidal Structure on Scissors Congruence Spectra", Young Topologists Meeting, Lausanne, Switzerland.
2011	"Scissors Congruence as K-Theory", Workshop on Algebraic Topology and Combinatorics, Buenos Aires, Argentina.
2012	"K-theory as a multifunctor", Young Topologists Meeting, Copenhagen, Denmark.
2012	"Ring structures on scissors congruence spectra", Midwest Topology Seminar, East Lansing, MI.
2013	"Scissors congruence and K-theory", Midwest WIMS, Chicago IL.
2013	"On the Grothendieck spectrum of varieties", Motives in Tokyo, Tokyo, Japan.
2013	"The K-theory of assemblers," Homotopical Methods in Algebraic Geometry, Los Angeles, CA.
2014	"A spectral sequence for the Grothendieck spectrum of varieties", Manifolds, K-theory and related topics, Dubrovnic, Croatia.
2014	"Algebraic K-theory of varieties and birational geometry," Workshop on differential cohomologies and algebraic K-theory, CUNY, New York, NY.
2015	"An investigation of small model categories," AWM Meeting in conjunction with JMM, San Antonio, TX.
2015	"The annihilator of the Lefschetz motive," K-theory, cyclic homology and motives, New Bruinswick, NJ.
2016	"Deriving the Grothendieck ring of varieties," Joint mathematics meetings: Special session on algebraic geometry, Seattle, WA.
2016	"A topological proof of a theorem of Larsen and Lunts", Midwest Topology Seminar, Evanston, IL.

2016	"Deriving Zeta functions", Mid-Atlantic Topology Conference, Baltimore, MA.
2016	"Analyzing geometric invariants with K-theory", Conference on Combinatorial structures in Geometry, Osnabrück, Germany.
2017	"An example of a derived motivic measure", Texas Symposium on Algebraic Geometry, Houston, TX.
2017	"Constructing derived zeta functions", Conference in honor of Paul Goerss, Urbana-Champaign, IL
2017	"A derived zeta function", Special session on K-theory and motives at the Mathematical Congress of the Americas, Montreal, Canada.
2018	"Constructing derived motivic measures", Homotopy theory summer: Equivariant homotopy theory and K-theory, Berlin, Germany.
2018	"Combinatorial aspects of K-theory", mini-course at summer school attached to algebraic K-theory satellite session at 2018 ICM, La Plata, Argentina.
2018 Upcoming	"Algebraic K-theory, combinatorial K-theory and geometry." Memorial conference for Vladimir Voevodsky, Princeton, NJ.
2018 Upcoming	TBA, Second Northeast Topology Seminar, Albany, NY.
2019 Upcoming	TBA, MSRI connections for women, Berkeley, CA.

Workshop Participation

2012	Talbot: Calculus of Functors.
2012	"Pseudoisotopies and K_2", West Coast Algebraic Topology Summer School: Algebraic K-theory, Stanford, CA.
2013	Women in Topology, Banff, Alberta, Canada.
2014	"Morse Field Theories", West Coast Algebraic Topology Summer School: TQFTs, Pacific Institute for the Mathematical Sciences, Alberta, Canada.
2015-2018	AIM SQuaRE together with Irina Bobkova, Ayelet Lindenstrass, Kate Poirier and Birgit Richter
2015	Visitor at the Hausdorff Institute's equivariant theories trimester.
2016	Women in Topology II, Banff, Alberta, Canada.
2016	"Algebraic K-theory and Motivic Cohomology", Oberwolfach, Germany.
2017	Workshop on Homotopical Type Theory, Snowbird, UT.
2018	"Topological cyclic homology", Oberwolfach, Germany.
2019 Upcoming	"Algebraic K-theory", Oberwolfach, Germany.
2019 Upcoming	Women in Topology III (group leader), Bonn, Germany.

Seminar talks

2011	"Scissors Congruence as K-Theory", University of Oregon Geometry and Topology Seminar, Eugene, OR.
2011	"A K-Theoretic Construction of Scissors Congruence Spectra", Northwestern University, Evanston, IL.

2011 "A K-Theoretic Construction of Scissors Congruence Spectra", University of Chicago Topology Seminar, Chicago, IL.

2011 "A K-Theoretic Construction of Scissors Congruence Spectra", University of Virginia Topology Seminar, Charlottesville, VA.

2011 "Scissors Congruence as K-Theory", Stanford University Topology Seminar, Stanford, CA.

2012 "Scissors congruence as K-theory", University of Western Ontario Topology Seminar, London, ON, Canada.

2012 "A K-theoretic perspective on scissors congruence problems", John Hopkins University Topology Seminar, Baltimore, MD.

2012 "Ring structures on scissors congruence spectra", University of Illinois at Urbana-Champaign Topology Seminar, Champaign, IL.

2013 "On filtrations of scissors congruence spectra", Georgia Tech Algebra Seminar, Atlanta, GA.

2014 "Scissors congruence and algebraic K-theory", Princeton University Algebraic Topology Seminar, Princeton, NJ.

2014 "Filtering the Grothendieck ring of varieties", Institute for Advanced Study Members Seminar, Princeton, NJ.

2014 "Filtering the Grothendieck ring of varieties", Harvard University Thursday Seminar, Cambridge, MA.

2014 "Filtering the Grothendieck ring of varieties", Universitat Freiburg Topology Seminar, Freiburg, Germany.

2014 "Recognizing small model categories", University of Illinois at Urbana-Champaign Topology Seminar, Urbana, IL.

2015 "Analyzing the Grothendieck ring of varieties using K-theory", University of Illinois Chicago Topology Semina, Chicago, IL.

2015 "Analyzing the Grothendieck ring of varieties using K-theory", Notre Dame University Topology Seminar, Notre Dame, IN.

2015 "On killing the affine line", Brown University topology seminar, Providence, RI.

2015 "On killing the affine line", Georgia Tech topology seminar, Atlanta, GA.

2015 "The annihilator of the Lefschetz motive", Minnesota State University Algebraic Topology Seminar, Minneapolis, MN.

2015 "The annihilator of the Lefschetz motive", University of Rochester Topology Seminar, Rochester, NY.

2015 "Connecting varieties, scissors congruence and K-theory", Indiana University Algebra Seminar, Bloomington, IA.

2015 "Spectral sequences associated to the Grothendieck spectrum of varieties", Indiana University Algebra Seminar, Bloomington, IA.

2015 "Cutting and pasting varieties using algebraic K-theory", Columbia Algebraic Geometry Seminar, New York, NY.

2015 "Cutting and pasting using algebraic K-theory", Cornell Topology and Geometric Group Theory Seminar, Ithaca, NY.

2016 "Cutting and pasting using algebraic K-theory", University of Michigan Algebraic Geometry Seminar, Ann Arbor, MI.

2016	"The annihilator of the Lefschetz motive", MIT algebraic topology seminar, Cambridge, MA.
2016	"From spaces to categories (and back!)", Cornell Oliver Club, Ithaca, NY.
2016	"From spaces to categories (and back!)", Syracuse University colloquium, Syracuse, NY.
2017	"An example of a derived motivic measure", Princeton University algebraic geometry seminar, Princeton, NJ.
2017	"Deriving zeta functions", UBC topology seminar, University of British Columbia, Vancouver, Canada.
2017	"Constructing derived motivic measures", SUNY Stony Brook algebraic geomtery seminar, Stony Brook, NY.
2017	"Measures, varieties, and higher structure", Algebraic Topology Seminar, University of Rochester, Rochester, NY.
2018	"K-theory: addition, subtraction and the art of making no choices", Stanford mathematics colloquium, Stanford, CA.
2018 Upcoming	TBA, University of Chicago Algebraic Topology Seminar, Chicago, IL.