

# IRINA BOBKOVA

## CURRICULUM VITAE

### CONTACT INFORMATION

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### EMPLOYMENT

09/2024 – present      *Associate Professor*, Texas A&M University, College Station, TX  
08/2019 – 08/2024      *Assistant Professor*, Texas A&M University, College Station, TX  
Spring 2019      *Postdoctoral Fellow*, Mathematical Sciences Research Institute, Berkeley, CA  
09/2017 – 07/2019      *Member*, School of Mathematics, Institute for Advanced Study, Princeton, NJ  
08/2014 – 07/2017      *Visiting Assistant Professor*, University of Rochester, Rochester, NY

### EDUCATION

June 2014      Ph.D. in Mathematics, Northwestern University, Evanston, IL  
May 2007      B.S. in Theoretical Physics, St. Petersburg State University, St. Petersburg, Russia

### SHORT-TERM RESEARCH VISITS

September 2022      Hausdorff Institute for Mathematics, Bonn, Germany  
Spectral Methods in Algebra, Geometry, and Topology Trimester Program  
June – July 2021      Max Planck Institute for Mathematics, Bonn, Germany  
July – August 2018      Isaac Newton Institute, Cambridge, UK  
Homotopy Harnessing Higher Structures Program  
June – August 2015      Hausdorff Institute for Mathematics, Bonn, Germany  
Homotopy Theory, Manifolds, and Field Theories Trimester Program  
January – May 2014      Mathematical Sciences Research Institute, Berkeley, CA  
Algebraic Topology Program

### RESEARCH GRANTS

2023–2028      NSF CAREER Grant DMS-2239362, PI  
2020–2023      NSF Research Grant DMS-2005627, PI  
2015–2018      AIM SQuaRE Grant

## OTHER GRANTS

2022	NSF Conference Grant DMS-2243528, co-PI
2022	NSF Conference Grant DMS-2220741, PI
2022	NSF RTG Grant DMS-2135884, Senior Personnel
2021	NSF Conference Grant DMS-2132086, PI
2019	NSF-AWM Travel Grant
2019	US Junior Oberwolfach Fellowship
2014–2017	AMS-Simons Travel Grant

## PUBLICATIONS

1. *On the higher topological Hochschild homology of  $\mathbb{F}_p$  and group algebras over it*, joint with A. Lindenstrauss, K. Poirier, B. Richter, I. Zakharevich, **Contemporary Mathematics** vol. 641 (2015), 97-122.
2. *Infinite loop spaces from operads with homological stability*, joint with M. Basterra, K. Ponto, U. Tillmann, S. Yeakel, **Advances in Mathematics** 321C (2017), 391-430.
3. *Inverting operations in operads*, joint with M. Basterra, K. Ponto, U. Tillmann, S. Yeakel, **Topology and its Applications** 235 (2018), 130–145.
4. *Topological resolutions in  $K(2)$ -local homotopy theory at the prime 2*, joint with P. G. Goerss, **Journal of Topology** 11 (2018), No 4, 917-956.
5. *Splittings and calculational techniques for higher THH*, joint with E.Höning, A. Lindenstrauss, K. Poirier, B. Richter and I. Zakharevich, **Algebraic & Geometric Topology** 19 (2019), 3711-3753.
6. *Spanier–Whitehead duality in the  $K(2)$ -local category at  $p = 2$* , **Proceedings of the AMS** 148 (2020), No. 12, 5421-5436.
7. *Invertible  $K(2)$ -Local  $E$ -Modules in  $C_4$ -Spectra*, joint with A. Beaudry, M. Hill and V. Stojanoska, **Algebraic & Geometric Topology** 20 (2020), 3423–3503.
8. *The  $P_2^1$  Margolis homology of connective topological modular forms*, joint with P. Bhattacharya and B. Thomas, **Homology, Homotopy and Applications**, Vol. 23 (2021), No 2, 379–402.
9. *The topological modular forms of  $\mathbb{R}P^2$  and  $\mathbb{R}P^2 \wedge \mathbb{C}P^2$* , joint with A. Beaudry, V-C. Pham and Z. Xu, **Journal of Topology** 15 (2022), No 4, 1864-1926.
10. *Cohomology of the Morava stabilizer group through the duality resolution at  $n = p = 2$* , joint with A. Beaudry, P. G. Goerss, H-W. Henn, V-C. Pham and V. Stojanoska, **Transactions of the AMS** 377 (2024), No. 3, 1761–1805.
11. *Bounding the  $K(p - 1)$ -local exotic Picard group at  $p > 3$* , joint with A. Lachmann, A. Li, A. Lima, V. Stojanoska and A. Y. Zhang, To appear in Proceedings of WIT IV Workshop, available at <https://arxiv.org/abs/2403.15572>.

12. *The exotic  $K(2)$ -local Picard group at the prime 2*,  
joint with A. Beaudry, P. G. Goerss, H-W. Henn, V-C. Pham and V. Stojanoska,  
Preprint, available at <https://arxiv.org/abs/2212.07858>.
13. *New infinite families in the stable homotopy groups of spheres*,  
joint with P. Bhattacharya and J.D. Quigley,  
Preprint, available at <https://arxiv.org/abs/2404.10062>.
14. *The Anderson duality for topological modular forms at  $p = 2$* ,  
joint with V. Stojanoska,  
Preprint, in preparation.

## SERVICE AND OUTREACH

Co-organizer (with P. Bhattacharya, C. Lee and H. Tanaka) of the conference “South Central Topology Conference III”, New Mexico State University, October 2023

Co-leader (with V. Stojanoska) of a research team for Women in Topology IV workshop, HIM, Bonn, Germany, August 2023

Co-organizer (with C. Lee, H. Tanaka and G. Xu) of the conference “South Central Topology Conference II”, Texas State University, San Marcos, TX, February 2023

Co-organizer (with T. Bauer, A. Beaudry and V. Stojanoska) of the workshop “EWM-EMS Summer School: Chromatic Homotopy Theory and Friends”, Mittag-Leffler Institute, Djursholm, Sweden, June 2022

Co-organizer (with H. Tanaka and G. Xu) of the conference “South Central Topology Conference”, Texas A&M University, College Station, TX, September 2021

TAMU Math Circle instructor, September 2020-current

Co-organizer of the Topology Seminar, Department of Mathematics, Texas A&M University, 2019 - current

Co-organizer of the conference “Homotopy Theory in the Ecliptic: Chromatic, Equivariant, and Motivic Mathematics”, Reed College, Portland, OR, August 2017

Organizer of the Topology Seminar, Department of Mathematics, University of Rochester, 2014-2017

NSF panel reviewer, three times

Article referee or quick opinion for journals including: *Acta Mathematica*, *Algebraic and Geometric Topology*, *Geometry and Topology*, *Journal of Topology*, *Proceedings of the AMS*, *Proceedings of the Edinburgh Math Society*.

Grant reviewer for UK Research and Innovation.

## SELECTED INVITED TALKS

### Conferences and workshops

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|----------------|---|
| March 2024     | Lloyd Roeling Conference in Topology, University of Louisiana, Lafayette, LA  |
| August 2023    | Transatlantic Transchromatic Homotopy Theory Conference II, Regensburg, Germany   |
| November 2020  | Algebra and Number Theory Day, Johns Hopkins University, Baltimore, MD (online)   |
| March 2020     | Special Session in Homotopy Theory at the AMS Sectional Meeting, Charlottesville, VA (cancelled due to COVID-19 pandemic) |
| November 2019  | Texas Geometry and Topology Conference, College Station, TX   |
| September 2019 | Descent and Chromatic Homotopy Theory, Strasbourg, France   |
| March 2019     | Arbeitsgemeinschaft: Elliptic Cohomology according to Lurie, MFO, Oberwolfach, Germany                                    |

January 2019	Connections for Women: Derived Algebraic Geometry, Birational Geometry and Moduli Spaces, MSRI, Berkeley, CA
June 2018	International Workshop on Algebraic Topology, Southern University of Science and Technology, Shenzhen, China
May 2018	Chromatic Homotopy Theory: Journey to the Frontier, CU Boulder, Boulder, CO
August 2017	Homotopy Theory in the Ecliptic: Chromatic, Equivariant, and Motivic Mathematics. A conference on the occasion of Doug Ravenel's 70th birthday, Reed College, Portland, OR
April 2016	2016 Graduate Student Topology and Geometry Conference, Young Faculty Speaker, Indiana University, Bloomington, IN
October 2015	Midwest Topology Seminar, Wayne State University, Detroit, MI
January 2015	Joint Mathematics Meetings, AWM Workshop, San Antonio, TX
June 2014	Manifolds, $K$ -theory, and Related Topics, Dubrovnik, Croatia
March 2014	The MIT Talbot Workshop, Pigeon Forge, TN
January 2014	Joint Mathematics Meetings, Special Session on Homotopy Theory, Baltimore, MD
April 2013	Women in Mathematics Symposium, University of Illinois at Chicago, Chicago, IL

#### Seminars and colloquia

July 2021	Oberseminar, MPIM Bonn, online
October 2020	Electronic Computational Homotopy Theory Seminar, online
February 2020	Topology Seminar, University of Pennsylvania, Philadelphia, PA
May 2019	Derived Algebraic Geometry Seminar, MSRI, Berkeley, CA
March 2019	Colloquium, University of Vienna, Vienna, Austria
December 2018	Colloquium, Texas A&M University, College Station, TX
December 2018	Topology Seminar, MIT, Cambridge, MA
November 2018	Member Seminar, IAS, Princeton, NJ
November 2018	Tetrahedral Topology/Geometry Seminar, Landisville, PA
May 2018	Deformation Theory Seminar, University of Pennsylvania, Philadelphia, PA
April 2018	Topology Seminar, University of Rochester, Rochester, NY
April 2018	Topology Seminar, Johns Hopkins University, Baltimore, MD
March 2018	Topology Seminar, Stanford University, Palo Alto, CA
February 2018	Algebraic Topology Seminar, Princeton University, Princeton, NJ
January 2018	Mathematical Conversations, IAS, Princeton, NJ
October 2017	Topology Seminar, University of Virginia, Charlottesville, VA
March 2017	Colloquium, Higher School of Economics, Moscow, Russia
February 2017	Topology Seminar, Wayne State University, Detroit, MI
November 2016	Topology Seminar, University of Notre Dame, Notre Dame, IN
October 2015	Topology Seminar, University of Rochester, Rochester, NY

May 2015            Topology Seminar, University of Louisiana, Lafayette, LA  
 April 2015           Topology Seminar, University of Virginia, Charlottesville, VA  
 December 2014      Algebra/Topology Seminar, University at Albany SUNY, Albany, NY  
 October 2014        Topology Seminar, University of Rochester, Rochester, NY  
 December 2013      Topology Seminar, University of Chicago, Chicago, IL  
 November 2013      Topology Seminar, Indiana University, Bloomington, IN  
 October 2013        Topology Seminar, University of Illinois at Urbana-Champaign, Urbana, IL

## TEACHING EXPERIENCE

### *Texas A&M University:*

Fall 2024            Communications and Cryptography (Math 470)  
 Spring 2024         Calculus I (Math 171) (2 sections)  
 Spring 2023         Calculus I (Math 171) (2 sections)  
 Fall 2021            Modern Algebra I (Math 415)  
 Fall 2021            Calculus I (Math 171)  
 Fall 2020            Topology I (Math 636)  
 Fall 2020            Calculus I (Math 171)  
 Fall 2019            Analytic Geometry and Calculus (Math 171) (2 sections)

### *University of Rochester:*

Spring 2017         Calculus IA (MTH 162)  
 Spring 2017         Calculus IIA (MTH 161)  
 Fall 2016            Linear Algebra and Differential Equations (MTH 165)  
 Fall 2016            Calculus IA (MTH 161)  
 Spring 2016         Linear Algebra and Differential Equations (MTH 165)  
 Spring 2016         Calculus III (MTH 143)  
 Fall 2015            Multidimensional Calculus (MTH 164)  
 Fall 2015            Calculus IA (MTH 161)  
 Spring 2015         Multidimensional Calculus (MTH 164)  
 Spring 2015         Calculus II (MTH 142)  
 Fall 2014            Calculus IA (MTH 161)  
 Fall 2014            Linear Algebra (MTH 235)

### *Northwestern University:*

Summer 2013        Multiple Integration and Vector Calculus (MATH 234)