

# Laurentiu Maxim

## Curriculum Vitae

### Education

- 2000–2005 **Ph.D. in Mathematics**, *University of Pennsylvania*, Philadelphia, USA.  
1997–1999 **Master in Mathematics**, *University of Bucharest*, Bucharest, Romania.  
1993–1997 **B.Sc. and Diploma in Mathematics**, *University of Bucharest*, Bucharest, Romania.

### Appointments

- 2016–Present **Professor**, UNIVERSITY OF WISCONSIN-MADISON.  
2013–2016 **Associate Professor**, UNIVERSITY OF WISCONSIN-MADISON.  
2009–2013 **Assistant Professor**, UNIVERSITY OF WISCONSIN-MADISON.  
Spring 2009 **Doctoral Faculty**, CITY UNIVERSITY OF NEW YORK, GRADUATE CENTER.  
2007–2009 **Assistant Professor**, CITY UNIVERSITY OF NEW YORK, LEHMAN COLLEGE.  
2007–2009 **Research Fellow**, COURANT INSTITUTE, NEW YORK UNIVERSITY.  
2005–2007 **Research Assistant Professor**, UNIVERSITY OF ILLINOIS AT CHICAGO.  
Spring 2006 **Courant Instructor**, COURANT INSTITUTE, NEW YORK UNIVERSITY.  
1998–Present **Research Fellow**, INSTITUTE OF MATHEMATICS OF THE ROMANIAN ACADEMY.

### Honors, Awards, Grants

- 2023–2024 *NSF conference award DMS-2304894: “Algebraic and topological interplay of algebraic varieties”*
- 2021–2023 *Vilas Associates Award*, University of Wisconsin-Madison
- 2021–2023 *Romanian Ministry of National Education Grant (Co-PI)*, CNCS-UEFISCDI, project number PN-III-P4-ID-PCE-2020-0029
- 2021–2022 *UW-Madison Fall Competition Award*
- 2019–2023 *Van Vleck Professorship Research Award*, University of Wisconsin-Madison
- 2019–2021 *NSF conference award DMS-1933786 (Co-PI): “Hyperplane arrangements and singularities”*  
2019 *NSF conference award DMS-1904103: “Non-isolated singularities and derived geometry”*  
2019 *Honored Instructor Award*, University of Wisconsin-Madison
- 2018–2023 *Simons Foundation Collaboration Grants for Mathematicians #567077: “Topology of complex algebraic varieties”*
- 2018–2019 *UW-Madison Fall Competition Award*
- 2017–2019 *Romanian Ministry of National Education Grant (Co-PI)*, CNCS-UEFISCDI, project number PN-III-P4-ID-PCE-2016-0030
- 2015–2017 *NSF conference award DMS-1462433: “Stratified spaces in geometric and computational topology and physics”*

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- 2015–2016 *Visiting Scientist of the Chinese Academy of Sciences*
- 2013–2017 *NSF research grant* DMS-1304999: “Singular Spaces in Geometry and Topology”
- 2013–2016 *NSA research grant* H98230-14-1-0130: “Singular Spaces in Geometry and Topology”
- 2013–2016 *Romanian Ministry of National Education Grant (Co-PI)*, CNCS-UEFISCDI, project number PN-II-ID-PCE-2012-4-0156
- 2013–2014 *Simons Foundation Collaboration Grants for Mathematicians #277891*: “Geometry and Topology of Singularities”
- 2012 *US Junior Oberwolfach Fellow*
- 2011–2013 *NSF conference award* DMS-1104329: “International Conference on Singularity Theory and Applications”
- 2010–2013 *NSF research grant* DMS-1005338: “Geometry and Topology of Singularities”
- 2010–2011 *UW-Madison Fall Competition Award* (declined)
- 2010 *The Dimitrie Pompeiu Mathematics Prize* of the Romanian Academy
- 2009–2010 *PSC-CUNY Research Award #* 62295-00 40
- 2008–2009 *PSC-CUNY Research Award* (PSCOOC-39-20)
- 2006 *NYU Research Challenge Fund Award*
- 2006 *NSF Travel Award* for attending the ICM 2006 (Madrid, Spain)

## Research Interests

Topology of hypersurface singularities; Hyperplane arrangements  
 Intersection homology, perverse sheaves and applications to singularities  
 Characteristic classes of singular spaces  
 Hodge theory  
 Applications of topology and singularity theory to applied algebraic geometry

## Publications

### Books

- 2019 *Intersection Homology & Perverse Sheaves, with Applications to Singularities*, **Graduate Texts in Mathematics**, Vol. 281, Springer, Cham. ISBN: 978-3030276430.

### Preprints

- 2023 *Hodge-theoretic variants of the Hopf and Singer Conjectures*,  
 arXiv:2310.14131.  
 (with D. Arapura and B. Wang)
- 2023 *Morse numbers of complex polynomials*,  
 arXiv:2307.04032.  
 (with M. Tibăr)
- 2023 *Brylinski-Radon transformation and generic projections*,  
 arXiv:2307.00352.  
 (with Y. Liu and B. Wang)
- 2023 *Equivariant toric geometry and Euler-Maclaurin formulae*,  
 arXiv:2303.16785.  
 (with S. Cappell, J. Schürmann, J. Shaneson)

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- 2023 *Hirzebruch-Milnor classes of hypersurfaces with nontrivial normal bundles and applications to higher du Bois and rational singularities*,  
arXiv:2302.00970.  
(with M. Saito and R. Yang)
- 2023 *Homological criterion for higher Du Bois and higher rational singularities*,  
arXiv:2301.09084.  
(with R. Yang)
- 2022 *Cohomology of  $Z$ -local systems on complex hyperplane arrangement complements*,  
arXiv:2209.13193.  
(with Y. Liu and B. Wang)
- Published / Accepted**
- 2024 *Linear optimization on varieties and Chern-Mather classes*,  
**Advances in Mathematics** 437 (2024), Paper No. 109443.  
(with J. Rodriguez, B. Wang and L. Wu)
- 2024 *Logarithmic cotangent bundles, Chern-Mather classes, and the Huh-Sturmfels Involution conjecture*, **Communications on Pure and Applied Mathematics** 77 (2024), no. 2, 899–1572.  
(with J. Rodriguez, B. Wang and L. Wu)
- 2024 *Euclidean distance degree and limit points in a Morsification*,  
**Advances in Applied Mathematics** 152 (2024), article 102597.  
(with M. Tibăr)
- 2023 *Applications of singularity theory in applied algebraic geometry and algebraic statistics*,  
**Handbook of Geometry and Topology of Singularities, volume VII.** (accepted 2023);  
arXiv:2305.19842.  
(with J. Rodriguez and B. Wang)
- 2023 *Morse numbers of function germs with isolated singularities*,  
**Quarterly Journal of Mathematics** 74 (2023), no. 4, 1535–1544.  
(with M. Tibăr)
- 2023 *On singular variants of the Singer-Hopf Conjecture*,  
**Mathematische Nachrichten** 296 (2023), no. 11, 5232–5241.
- 2022 *Alexander modules, Mellin transformation and variations of mixed Hodge structures*,  
**Advances in Mathematics** 411 (2022), paper 108798.  
(with E. Elduque, M. Herradón-Cueto and B. Wang)
- 2022 *Non-abelian Mellin transformations and Applications*,  
**Forum of Mathematics, Sigma** 10 (2022), paper no. e100.  
(with Y. Liu and B. Wang)
- 2022 *Mixed Hodge structures on Alexander modules*,  
**Memoirs of the American Mathematical Society** (accepted 2022); arXiv:2002.01589.  
(with E. Elduque, C. Geske, M. Herradón-Cueto and B. Wang)
- 2022 *The vanishing cohomology of non-isolated hypersurface singularities*,  
**Journal of the London Mathematical Society**, 106 (2022), no. 1, 112–153.  
(with L. Păunescu and M. Tibăr)
- 2022 *Vanishing cohomology and Betti bounds for complex projective hypersurfaces*,  
**Annales de l'Institut Fourier** 72 (2022), no. 4, 1705–1731.  
(with L. Păunescu and M. Tibăr)

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- 2022 *A Morse theoretic approach to non-isolated singularities and applications to optimization*,  
**Journal of Pure and Applied Algebra** 226 (2022), Issue 3, 106865.  
(with J. Rodriguez and B. Wang)
- 2022 *Constructible sheaf complexes in complex geometry and Applications*,  
**Handbook of Geometry and Topology of Singularities, III.**, pages 679–791, Springer,  
Cham, 2022.  
(with Jörg Schürmann)
- 2022 *Hodge theory on Alexander invariants – a survey*,  
**Topology and its Applications** 313 (2022), article 107981.  
(with E. Elduque, C. Geske, M. Herradón-Cueto and B. Wang)
- 2021 *Aspherical manifolds, Mellin transformation and a question of Bobadilla-Kollár*,  
**Journal für die reine und angewandte Mathematik (Crelle)**, 781 (2021), 1–18.  
(with Y. Liu and B. Wang)
- 2021 *Perverse sheaves on semi-abelian varieties*,  
**Selecta Mathematica** 27 (2021), article 30.  
(with Y. Liu and B. Wang)
- 2021 *Higher order degrees of affine plane curve complements*,  
**Indiana University Mathematics Journal** 70 (2021), no. 1, 179–211.  
(with E. Elduque)
- 2021 *Euclidean distance degree of projective varieties*,  
**International Mathematics Research Notices** Vol. 2021, Issue 20, Pages 15788–15802.  
(with J. Rodriguez and B. Wang)
- 2021 *Topology of subvarieties of complex semi-abelian varieties*,  
**International Mathematics Research Notices** Vol. 2021, no. 14, 11169–11208.  
(with Y. Liu and B. Wang)
- 2020 *Plethysm and cohomology representations of external and symmetric products*,  
**Advances in Mathematics** 375 (2020), 107373.  
(with J. Schürmann)
- 2020 *Defect of Euclidean distance degree*,  
**Advances in Applied Mathematics** 121 (2020), 102101.  
(with J. Rodriguez and B. Wang)
- 2020 *Spectral Hirzebruch-Milnor classes of singular hypersurfaces*,  
**Mathematische Annalen** 377 (2000), no. 1-2, 281–315.  
(with M. Saito and J. Schürmann)
- 2020 *Thom-Sebastiani theorems for filtered  $D$ -modules and for multiplier ideals*,  
**International Mathematics Research Notices** Vol. 2020, no. 1, 91–111.  
(with M. Saito and J. Schürmann)
- 2020 *Euclidean distance degree of the multiview variety*,  
**SIAM J. Appl. Algebra Geometry** 4 (2020), no. 1, 28–48.  
(with J. Rodriguez and B. Wang)
- 2020 *Notes on vanishing cycles and applications*,  
**Journal of the Australian Math Society** 109 (2020), no. 3, 371–415.
- 2020 *Perverse sheaves on semi-abelian varieties – a survey of properties and applications*,  
**European Journal of Mathematics** 6 (2020), no. 3, 977–997.  
(with Y. Liu and B. Wang)

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- 2020 *Topological methods in algebraic geometry and algebraic statistics*,  
**Rev. Roumaine Math. Pures Appl.** 65 (2020), no. 3, 311–325.
- 2019 *Homological congruence formulae for characteristic classes of singular varieties*,  
**European Journal of Mathematics** 5 (2019), no. 4, 1267–1292.  
(with S. Yokura)
- 2019 *Generic vanishing for semi-abelian varieties and integral Alexander modules*,  
**Mathematische Zeitschrift** 293 (2019), no. 1-2, 629–645.  
(with Y. Liu and B. Wang)
- 2018 *Mellin transformation, propagation, and abelian duality spaces*,  
**Advances in Mathematics** 335 (2018), 231–260.  
(with Y. Liu and B. Wang)
- 2018 *On the signed Euler characteristic property for subvarieties of abelian varieties*,  
**Journal of Singularities** 17 (2018), 368–387.  
(with E. Elduque and C. Geske)
- 2018 *Motivic zeta functions and infinite cyclic covers*,  
In “Local and Global Methods in Algebraic Geometry”. **Contemp. Math.** 712 (2018),  
117–141. (with M. Gonzalez Villa and A. Libgober)
- 2018 *Twisted Alexander invariants of complex hypersurface complements*,  
**Proceedings of the Royal Society of Edinburgh** 148 (2018), no. 5, 1049–1073.  
(with K. Wong)
- 2018 *Equivariant characteristic classes of external and symmetric products of varieties*,  
**Geometry & Topology** 22 (2018), no. 1, 471–515.  
(with J. Schürmann)
- 2017 *Characteristic classes of symmetric products of complex quasi-projective varieties*,  
**Journal für die reine und angewandte Mathematik** 728 (2017), 35–63.  
(with S. Cappell, J. Schürmann, J. Shaneson and S. Yokura)
- 2017 *Spectral pairs, Alexander modules, and boundary manifolds*,  
**Selecta Mathematica** 23 (2017), no. 3, 2261–2290.  
(with Y. Liu)
- 2017 *Characteristic varieties of hypersurface complements*,  
**Advances in Mathematics** 306 (2017), 451–493.  
(with Y. Liu).
- 2017 *Twisted Novikov homology of complex hypersurface complements*,  
**Mathematische Nachrichten** 290 (2017), no. 4, 604–612.  
(with S. Friedl)
- 2017 *Characteristic classes of mixed Hodge modules and applications*,  
In “Schubert Varieties, Equivariant Cohomology and Characteristic Classes (Impanga 15)”.  
**EMS Series of Congress Reports** (2017), 159–202.  
(with J. Schürmann).
- 2016 *Motivic infinite cyclic covers*,  
**Advances in Mathematics** 298 (2016), 413–447.  
(with A. Libgober and M. Gonzalez Villa)
- 2016 *Intersection spaces, perverse sheaves and string theory*,  
In “Proceedings of the AMS Special Session on Singularities and Physics, Knoxville, 2014”.  
**Journal of Singularities** 15 (2016), 118–125.

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- 2016 *Hirzebruch-Milnor classes and Steenbrink spectra of certain projective hypersurfaces*,  
In “Arbeitstagung Bonn 2013”. **Progress in Mathematics** 319 (2016), 265–287.  
(with M. Saito and J. Schürmann).
- 2015 *Reidemeister torsion, peripheral complex, and Alexander polynomials of hypersurface complements*, **Algebraic & Geometric Topology** 15 (2015), 2757–2787.  
(with Y. Liu)
- 2015 *Characteristic classes of singular toric varieties*,  
**Communications on Pure and Applied Mathematics** 68 (2015), no. 12, 2177–2236.  
(with J. Schürmann)
- 2014  *$L^2$ -Betti numbers of hypersurface complements*,  
**International Mathematics Research Notices** Vol. 2014, no. 17, 4665–4678.
- 2014 *Intersection spaces, perverse sheaves and type IIB string theory*,  
**Advances in Theoretical and Mathematical Physics** 18 (2014), no. 2, 363–399.  
(with M. Banagl and N. Budur)
- 2013 *Characteristic classes of singular toric varieties*,  
**Electronic Research Announcements in Mathematical Sciences** 20 (2013), 109–120.  
(with J. Schürmann)
- 2013 *Hirzebruch-Milnor classes of complete intersections*,  
**Advances in Mathematics** 241 (2013), 220–245.  
(with M. Saito and J. Schürmann)
- 2013 *Characteristic classes of Hilbert schemes of points via symmetric products*,  
**Geometry & Topology** 17 (2013), no. 2, 1165–1198.  
(with S. Cappell, T. Ohmoto, J. Schürmann and S. Yokura)
- 2013 *Characteristic numbers, genera, and resolutions*,  
In “Advances in Mathematics: Invited Contributions to the Seventh Congress of Romanian Mathematicians”. The Publishing House of the Romanian Academy, 2013, pp. 207–225.
- 2012 *Intersection spaces and hypersurface singularities*,  
**Journal of Singularities** 5 (2012), 48–56.
- 2012 *Deformation of singularities and the homology of intersection spaces*,  
**Journal of Topology and Analysis** 4 (2012), no. 4, 413–448.  
(with M. Banagl)
- 2012 *Equivariant characteristic classes of complex algebraic varieties*,  
**Communications on Pure and Applied Mathematics** 65 (2012), no. 12, 1722–1769.  
(with S. Cappell, J. Schürmann and J. Shaneson)
- 2012 *Twisted genera of symmetric products*,  
**Selecta Mathematica** 18 (2012), no. 1, 283–317.  
(with J. Schürmann)
- 2011 *Symmetric products of mixed Hodge modules*,  
**Journal de Mathématiques Pures et Appliqués** 96 (2011), no. 5, 462–483.  
(with M. Saito and J. Schürmann)
- 2011 *Hirzebruch invariants of symmetric products*,  
In “Topology of Algebraic Varieties and Singularities”. **Contemp. Math.** 538 (2011), 163–177. (with J. Schürmann)

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- 2011 *Hodge polynomials of singular hypersurfaces*,  
**Michigan Mathematical Journal** 60 (2011), no. 3, 661–673.  
 (with A. Libgober)
- 2011 *On Milnor classes of complex hypersurfaces*,  
 In “Topology of Stratified Spaces”. **MSRI Publications** 58, Cambridge University Press  
 (2011), 161–175.
- 2010 *Characteristic classes of complex hypersurfaces*,  
**Advances in Mathematics** 225 (2010), no. 5, 2616–2647.  
 (with S. Cappell, J. Schürmann and J. Shaneson)
- 2009 *Equivariant genera of complex algebraic varieties*,  
**International Mathematics Research Notices** Vol. 2009, no. 11, 2013–2037.  
 (with S. Cappell and J. Shaneson)
- 2009  *$L^2$ -Betti numbers of plane algebraic curves*,  
**Michigan Mathematical Journal** 58 (2009), no. 2, 411–421.  
 (with S. Friedl and C. Leidy)
- 2009 *Hodge genera of algebraic varieties, II.*,  
**Mathematische Annalen** 345 (2009), no. 4, 925–972.  
 (with S. Cappell, A. Libgober and J. Shaneson)
- 2008 *Hodge-theoretic Atiyah-Meyer formulae and the stratified multiplicative property*,  
 In “Singularities I: Algebraic and Analytic Aspects”. **Contemp. Math.** 474 (2008),  
 145–167. (with J. Schürmann)
- 2008 *Intersection cohomology invariants of complex algebraic varieties*,  
 In “Singularities I: Algebraic and Analytic Aspects”. **Contemp. Math.** 474 (2008), 15–25.  
 (with S. Cappell and J. Shaneson)
- 2008 *Hodge genera and characteristic classes of complex algebraic varieties*,  
**Electronic Research Announcements in Mathematical Sciences** 15 (2008), 1–7.  
 (with S. Cappell, A. Libgober and J. Shaneson)
- 2008 *Obstructions on fundamental groups of plane curve complements*,  
 In “Real and Complex Singularities”. **Contemp. Math.** 459 (2008), 117–130.  
 (with C. Leidy)
- 2008 *Hodge genera of algebraic varieties, I.*,  
**Communications on Pure and Applied Mathematics** 61 (2008), no. 3, 422–449.  
 (with S. Cappell and J. Shaneson)
- 2008 *Euler characteristics of algebraic varieties*,  
**Communications on Pure and Applied Mathematics** 61 (2008), no. 3, 409–421.  
 (with S. Cappell and J. Shaneson)
- 2007 *On the Alexander invariants of hypersurface complements*,  
 In “Singularity Theory”. Proceedings of the 2005 Marseille Singularity School and Confer-  
 ence, World Scientific, 2007, 725–744.
- 2007 *Multivariable Alexander invariants of hypersurface complements*,  
**Transactions of the American Mathematical Society** 359 (2007), no. 7, 3505–3528.  
 (with A. Dimca)
- 2006 *Higher-order Alexander invariants of plane algebraic curves*,  
**International Mathematics Research Notices** 2006, Article ID 12976, 23 pp.  
 (with C. Leidy)

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- 2006 *Intersection homology and Alexander modules of hypersurface complements*,  
**Commentarii Mathematici Helvetici** 81 (2006), no. 1, 123–155.
- 2005 *A decomposition theorem for the peripheral complex associated with hypersurfaces*,  
**International Mathematics Research Notices** 43 (2005), 2627–2656.

### Books Edited

- 2022 *Proceedings of the 16th International Workshop on Real and Complex Singularities*,  
**Journal of Singularities**, vol. 25 (2022).  
(with M. Manoel, M. A. Ruas and D. Trotman)
- 2022 *Proceedings of the Tokyo 2019 Hyper-JARCS Conference*,  
**Topology and its Applications**, vol. 313 (2022).  
(with T. Fukui, T. Kohno, L. Paunescu, A. Suciu and M. Yoshinaga)
- 2017 *Interactions between Low-dimensional Topology and Complex Algebraic Geometry*,  
**Oberwolfach Reports** 14 (2017), no. 4, 2987–3033.  
(with S. Friedl and A. Suciu)
- 2012 *Proceedings of the Hefei International Conference on Singularity Theory and Applications*,  
**Journal of Singularities**, vol. 5 (2012).
- 2011 *Topology of Stratified Spaces*,  
**MSRI Publications** 58, Cambridge University Press, New York, 2011.  
(with G. Friedman, E. Hunsiker and A. Libgober)

## Invited Talks

### Conference Talks

- 9/2023 *Conference on “Characteristic Classes and Singular Spaces”*, Kiel University, Germany
- 6-7/2023 *Special Session on “Algebraic, Complex and Differential Geometry and Topology”* at the  
Tenth Congress of Romanian Mathematicians, Pitesti, Romania
- 5/2023 *Workshop on Lefschetz Properties in Algebra, Geometry, Topology and Combinatorics*, at  
the Fields Institute, Toronto, Canada
- 3/2023 *Special Session on “Singer-Hopf Conjecture in Geometry and Topology”*, at the Spring  
Southeastern AMS Sectional Meeting, Georgia Tech University, Atlanta, GA
- 2/2023 *“Singularities and Algebraic Geometry”*, University of Khanh Hoa, Nha Trang, Vietnam
- 2/2023 *“Periods, Shafarevich Maps and Applications”*, Institute of the Mathematical Sciences of  
the Americas, University of Miami, Miami, FL
- 10/2022 *“Singularity theory and its applications”*, RIMS, Kyoto University, Kyoto, Japan (hybrid)
- 10/2021 *“Conference on Compactifications, Configurations, and Cohomology”*, Northeastern University,  
Boston, MA
- 06/2021 *“Singularities at Solstice”*, Lille, France
- 11/2020 *“16th International Workshop on Real and Complex Singularities”*, Online Workshop
- 06/2020 *“Arrangements at Home, II.”*, Online Workshop
- 12/2019 *“Hyperplane arrangements and Japanese-Australian workshop on Real and Complex Singu-  
larities”*, Tokyo, Japan
- 09/2019 *Conference on “Hodge Theory” in Honor of Donu Arapura’s 60th Birthday*, Madison, WI
- 07-08/2019 *“Non-Isolated Singularities and Derived Geometry: A celebration of the 60th birthday of  
David Massey”*, Cuernavaca, Mexico

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- 06/2019 *"UIC Singularity Workshop"*, Chicago, IL
- 02/2019 *"The 14th Kagoshima Algebra-Analysis-Geometry Seminar"*, Kagoshima, Japan
- 09/2018 *"The 6th Franco-Japanese-Vietnamese Symposium on Singularities"*, Nha Trang, Vietnam
- 08/2018 *"MPS Conference on Singularities: Geometric, Topological, and Analytic Aspects"*, Simons Institute, New York City, NY
- 05/2018 *"Topology and Geometry: A conference in memory of Stefan Papadima"*, Bucharest, Romania
- 05/2018 *"Workshop for Young Researchers in Mathematics"*, Bucharest, Romania
- 04/2018 Special Session on *"Arrangements of Hypersurfaces"* at the Spring Eastern AMS Sectional Meeting, Northeastern University, Boston, MA
- 04/2018 *"A Day of Singularities at Northeastern University"*, Boston, MA
- 05/2017 *"Workshop for Young Researchers in Mathematics"*, Bucharest, Romania
- 06/2016 *"Analysis, Geometry and Topology of Stratified Spaces"*, CIRM, Luminy, France
- 05-06/2016 *"Nonisolated Singularities"*, Lille, France
- 05/2016 *"Workshop for Young Researchers in Mathematics"*, Constanta, Romania
- 04/2016 *"MIST IV: Mathematics Inspired by String Theory"*, CUHK, Hong Kong
- 03/2016 *"Singularities and Topology Conference"*, Nice, France
- 12/2015 *"International Conference on Singularity Theory—in Honor of Henry Laufer's 70th Birthday"*, Sanya, China
- 09/2015 *"Geometry, Topology and Combinatorics of Hyperplane Arrangements and Related Problems"*, Zaragoza, Spain
- 07/2015 *"Topological methods in Singularity Theory"*, Edinburgh, UK
- 06-07/2015 Special Session on *"Geometry and Topology of Differentiable Manifolds and Algebraic Varieties"* at the Eighth Congress of Romanian Mathematicians, Iasi, Romania
- 05/2015 *"Workshop for Young Researchers in Mathematics"*, Constanta, Romania
- 04/2015 *"IMPANGA 15"*, Bedlewo, Poland
- 02/2015 *"Local and Global Invariants of Singularities"*, CIRM, Luminy, France
- 09/2014 Special Session on *"New Trends in Toric Varieties"* at the Central Fall AMS Sectional Meeting, Eau Claire, WI
- 08/2014 *"The 2nd Franco-Japanese-Vietnamese Symposium on Singularities"*, Sapporo, Japan
- 08/2014 *"Knots and Low Dimensional Manifolds"*, A Satellite Conference of Seoul ICM 2014, Busan, Korea
- 06/2014 *"Analysis and Topology in Interaction"*, Cortona, Italy
- 06/2014 *"Algebraic Geometry Summer Days in Bucharest"*, Bucharest, Romania
- 05/2014 *"Workshop for Young Researchers in Mathematics"*, Constanta, Romania
- 03/2014 Special Session on *"Singularities and Physics"* at the 2014 Southeastern Spring Sectional Meeting, Knoxville, TN
- 11/2013 *"Hyperplane Arrangements and Characteristic Classes"*, RIMS, Kyoto, Japan
- 09/2013 *"Algebra, Geometry and Topology of Singularities"*, Miraflores de la Sierra, Spain
- 08/2013 Clay Workshop on *"Mixed Hodge Modules and Their Applications"*, Oxford, UK
- 06/2013 Special Session on *"Singularities in Geometry and Topology"* at the 2nd PRIMA Congress, Shanghai, China

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- 06/2013 *"Experimental and Theoretical Methods in Algebra, Geometry, and Topology"* (in honor of the 60th birthdays of A. Dimca and S. Papadima), Eforie Nord, Romania
- 06/2013 *"Motivic Invariants and Singularities Thematic Conference"*, Notre Dame University, South Bend, IN
- 02/2013 *"The 8-th Kagoshima Algebra-Analysis-Geometry Seminar"*, Kagoshima, Japan
- 01/2013 Special Session on *"Singularities in Geometry and Algebra"* at the AMS-MAA Joint Meeting, San Diego, CA
- 10/2012 Mini-Workshop *"Cohomology Rings and Fundamental Groups of Hyperplane Arrangements, Wonderful Compactifications, and Real Toric Varieties"*, Oberwolfach, Germany
- 10/2012 Mini-Workshop *"Topology of Real Singularities and Motivic Aspects"*, Oberwolfach, Germany
- 05/2012 AIM Workshop on *"Motivic Donaldson-Thomas theory and singularity theory"*, Budapest, Hungary
- 03/2012 Special Session on *"Singularities in Commutative Algebra and Algebraic Geometry"* at the 2012 Spring Central Section Meeting, Lawrence, Kansas
- 09/2011 *"Iberian Meeting on Algebraic Analysis and Geometry"*, Lisbon, Portugal
- 08/2011 *"Latin American School of Algebraic Geometry and Applications"*, Cordoba, Argentina
- 07/2011 Seminar on *"Singularity Theory and Related Topics"*, Beijing, China
- 06-07/2011 *"The Seventh Congress of Romanian Mathematicians"*, Brasov, Romania
- 12/2010 Special Session on *"Complex Algebraic Geometry"* at the Joint Meeting of the AMS-SOMACHI, Pucón, Chile
- 11/2010 Special Session on *"Singularities in Algebraic Geometry"* at the 2010 Fall Central Section Meeting, Notre Dame, IN
- 06-07/2010 *"Summer School and Conference on Hodge Theory and Related Topics"*, ICTP, Trieste, Italy
- 03/2010 Special Session on *"Homotopy Theory and Geometric Aspects of Algebraic Topology"* at the 2010 Spring Southeastern Sectional Meeting, Lexington, KY
- 12/2009 Special Session on *"Knot Theory and Related Topics"* at the Joint Meeting of the AMS-KMS, Seoul, Korea
- 09/2009 *"Singularities"*, Oberwolfach, Germany
- 06/2009 *"Topology of Algebraic Varieties"*, Jaca, Spain
- 07/2008 *"Algebraic Geometry, D-modules and Foliations"*, Buenos Aires, Argentina
- 07/2008 *"International Conference in Algebraic Geometry"*, IMAR, Bucharest, Romania
- 06/2008 *"Knot Theory: Fifty Years since Fox and Milnor"*, Brandeis University
- 03/2008 *"Singularities in Geometry and Topology"*, Courant Institute, NYC, NY
- 08/2007 Special Session on *"Higher Dimensional Geometry"* at the IV Iberoamerican Conference on Complex Geometry, Ouro Preto, Brazil
- 01/2007 AMS Special Session on *"Arrangements and Related Topics"*, New Orleans, LA
- 08/2006 CIMPA-UNESCO-SPAIN School *"New Trends in Singularity Theory"*, ICM 2006 Satellite Activity, Universidad Complutense de Madrid, Spain
- 08/2006 ICM Satellite Conference on *"Algebraic Geometry"*, Segovia, Spain
- 08/2006 *"Recent Developments in Arrangements and Configuration Spaces"*, MSRI, Berkeley, CA

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- 07/2006 "9-th International Workshop on Real and Complex Singularities", ICMC-USP, Sao Carlos, Brazil
- 05/2006 "International Symposium on Singularity Theory and its Applications", Beijing, China
- 04/2006 AMS Special Session on "Arrangements and Configuration Spaces", Durham, NH
- 08/2005 "Hyperplane Arrangements Workshop", PIMS-UBC, Vancouver, Canada
- 03/2005 "Submanifolds, Singular Varieties, and Stratified Spaces", Courant Institute, NYC, NY
- 01-02/2005 "Singularities", CIRM-LUMINY, Marseille, France
- 10/2004 Workshop on "Topology of Arrangements and Applications", MSRI, Berkeley, CA
- 06/2004 "Lehigh Geometry-Topology Conference", Bethlehem, PA

### Seminar Talks

- 08/2023 Institute of Mathematics of the Romanian Academy, Topology Seminar – Bucharest, Romania
- 06/2023 Institute of Mathematics of the Romanian Academy, Topology Seminar – Bucharest, Romania
- 12/2022 Institute of Mathematics of the Romanian Academy, Topology Seminar – Bucharest, Romania
- 12/2022 KTH Royal Institute of Technology, Applied CATS Seminar – Stockholm, Sweden
- 11/2022 Humboldt University Algebraic Geometry Seminar – Berlin, Germany
- 11/2022 Humboldt University Arithmetic Geometry Seminar – Berlin, Germany
- 11/2022 Joint Seminar on Complex Algebraic Geometry and Complex Analysis (Bochum - Essen - Köln - Münster - Wuppertal) – Wuppertal, Germany
- 11/2022 University of Bologna Algebra and Geometry Seminar – Bologna, Italy
- 11/2022 University of Regensburg SFB Lecture – Regensburg, Germany
- 10/2022 KU Leuven Number Theory and Algebraic Geometry Seminar – Leuven, Belgium
- 10/2022 MPI-Oberseminar – Max Planck Institute, Bonn, Germany
- 09/2022 University of Heidelberg Topology Seminar – Heidelberg, Germany
- 07/2022 Institute of Mathematics of the Romanian Academy, Topology Seminar – Bucharest, Romania
- 06/2022 Institute of Mathematics of the Romanian Academy, Algebraic Geometry Seminar – Bucharest, Romania
- 06/2022 Centro Internazionale per la Ricerca Matematica (CIRM) – Trento, Italy
- 05/2022 University of Lille Algebraic Geometry Seminar – Lille, France
- 10/2021 University of Wisconsin-Madison Geometry & Topology Seminar – Madison, WI
- 06/2021 Institute of Mathematics of the Romanian Academy, Topology Seminar (online)
- 06/2021 University of Lille Colloquium – Lille, France
- 03/2021 University of Western Ontario Geometry and Combinatorics Seminar (online)
- 10/2020 Oxford Topology Seminar (online)
- 03/2020 University of Sydney Geometry & Topology Seminar – Sydney, Australia
- 02/2020 Sydney Mathematical Research Institute Informal Seminar (2 talks) – Sydney, Australia
- 02/2020 Sydney Mathematical Research Institute Seminar (2 talks) – Sydney, Australia
- 12/2019 Northeastern University Colloquium – Boston, MA

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- 11/2019 University of Notre Dame Algebraic Geometry and Commutative Algebra Seminar – South Bend, IN
- 11/2019 University of Notre Dame Intersection cohomology and perverse sheaves Seminar – South Bend, IN
- 06/2019 Institute of Mathematics of the Romanian Academy, Algebraic Geometry Seminar – Bucharest, Romania
- 06/2019 East China Normal University Algebraic Geometry Seminar – Shanghai, China
- 06/2019 Soochow University – Suzhou, China
- 05/2019 Basque Center for Applied Mathematics – Bilbao, Spain
- 04/2019 NYU - Courant Institute Colloquium – NYC, New York
- 04/2019 Center for Applied Mathematics, Tianjin University – Tianjin, China
- 03/2019 NYU - Shanghai Colloquium – Shanghai, China
- 02/2019 Vanderbilt University Geometry Seminar – Nashville, TN
- 03/2018 Georgia Southern University Colloquium – Statesboro, GA
- 06/2017 KU Leuven Colloquium – Leuven, Belgium
- 06/2017 University of Münster Algebra & Geometry Seminar – Münster, Germany
- 05/2017 Institute of Mathematics of the Romanian Academy, Algebraic Geometry Seminar – Bucharest, Romania
- 04/2017 University of Melbourne Colloquium – Melbourne, Australia
- 04/2017 University of Wisconsin-Madison Algebraic Geometry Seminar – Madison, WI
- 03/2017 University of Michigan Algebraic Geometry Seminar – Ann Arbor, MI
- 02/2017 University of Pennsylvania Colloquium – Philadelphia, PA
- 02/2017 University of Pennsylvania Geometry & Topology Seminar – Philadelphia, PA
- 10/2016 University of Colorado-Boulder Kempner Colloquium – Boulder, CO
- 10/2016 University of Colorado-Boulder Topology Seminar – Boulder, CO
- 06/2016 The London Geometry and Topology Seminar – Imperial College, London, UK
- 05/2016 MPIM Topology Seminar – Max Planck Institute, Bonn, Germany
- 04/2016 Hong Kong University Geometry Seminar – Hong Kong
- 02/2016 University of Lille Algebraic Geometry Seminar – Lille, France
- 12/2015 University of Heidelberg Colloquium – Heidelberg, Germany
- 11/2015 MPIM Algebraic Geometry Seminar – Max Planck Institute, Bonn, Germany
- 10/2015 KU Leuven Seminar in Number Theory and Algebraic Geometry – Leuven, Belgium
- 10/2015 Purdue University Topology Seminar – West Lafayette, IN
- 10/2015 University of Wisconsin-Madison Algebraic Geometry Seminar – Madison, WI
- 09/2015 Institute of Mathematics of the Romanian Academy, Algebraic Geometry Seminar – Bucharest, Romania
- 06/2015 East China Normal University Topology Seminar – Shanghai, China
- 10/2014 University of Pennsylvania Colloquium – Philadelphia, PA
- 06/2014 Institute of Mathematics of the Romanian Academy, Topology Seminar – Bucharest, Romania
- 11/2013 University of Missouri - St. Louis Colloquium – St. Louis, MO
- 10/2013 Vanderbilt University Geometry Seminar – Nashville, TN

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07/2013 MPI-Oberseminar – Max Planck Institute, Bonn, Germany  
 07/2013 University of Science and Technology of China Geometry Seminar – Hefei, China  
 05/2013 University of Cologne Seminar on Low-Dimensional Topology – Cologne, Germany  
 02/2013 University of Wisconsin-Madison Algebraic Geometry Seminar – Madison, WI  
 07/2012 University of Heidelberg Colloquium – Heidelberg, Germany  
 07/2012 East China Normal University Topology Seminar – Shanghai, China  
 06/2012 IMS-Chinese University of Hong Kong Geometry Seminar – Hong Kong  
 05/2012 CIMAT Algebraic Geometry Seminar – Guanajuato, Mexico  
 02/2012 University of Wisconsin-Madison Algebraic Geometry Seminar – Madison, WI  
 02/2012 University of Wisconsin-Madison Geometry & Topology Seminar – Madison, WI  
 11/2011 New York University Geometric Analysis and Topology Seminar – New York City, NY  
 06/2011 East China Normal University Topology Seminar – Shanghai, China  
 03/2011 Michigan State University Algebra Seminar – East Lansing, MI  
 02/2011 Iowa State University Colloquium – Ames, IA  
 02/2011 University of Wisconsin-Madison Geometry & Topology Seminar – Madison, WI  
 01/2011 Northeastern University Colloquium – Boston, MA  
 07/2010 University of Heidelberg Topology Seminar – Heidelberg, Germany  
 04/2010 New York University Geometric Analysis and Topology Seminar – New York City, NY  
 02/2010 University of Illinois at Chicago Algebraic Geometry Seminar – Chicago, IL  
 11/2009 University of Notre Dame Algebra Seminar – South Bend, IN  
 10/2009 University of Wisconsin-Madison Algebraic Geometry Seminar – Madison, WI  
 09/2009 University of Wisconsin-Madison Geometry & Topology Seminar – Madison, WI  
 02/2009 CUNY Commutative Algebra & Algebraic Geometry Seminar – New York City, NY  
 02/2009 Tulane University Colloquium – New Orleans, LA  
 02/2009 University of Iowa Colloquium – Iowa City, IA  
 01/2009 University of Wisconsin-Madison Colloquium – Madison, WI  
 01/2009 Rutgers University Colloquium – Piscataway, NJ  
 01/2009 UC Santa Cruz Colloquium – Santa Cruz, CA  
 01/2009 Syracuse University Colloquium – Syracuse, NY  
 12/2008 Purdue University Colloquium – West Lafayette, IN  
 09/2008 Ohio State University Algebraic Geometry Seminar – Columbus, OH  
 04/2008 CUNY-Graduate Center Topology Seminar – New York City, NY  
 03/2008 CUNY-Lehman College CSM Scholarship Lecture – New York City, NY  
 03/2008 Wesleyan University Mathematics Colloquium – Middletown, CT  
 12/2007 Northeastern University Geometry-Algebra-Singularities-Combinatorics Seminar – Boston, MA  
 10/2007 University of Illinois at Chicago Algebraic Geometry Seminar – Chicago, IL  
 09/2007 Stony Brook University Algebra, Geometry and Physics Seminar – Stony Brook, NY  
 03/2007 University of Illinois at Chicago Algebraic Geometry Seminar – Chicago, IL  
 02/2007 CUNY-Lehman College Mathematics Colloquium – New York City, NY  
 02/2007 New York University Differential Geometry and Topology Seminar – New York City, NY

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- 02/2007 University of Oregon Mathematics Colloquium – Eugene, OR
- 01/2007 University of Western Ontario Mathematics Colloquium – London, Ontario, Canada
- 12/2006 University of Wisconsin-Madison Algebraic Geometry Seminar – Madison, WI
- 10/2006 University of Chicago Algebraic Geometry Seminar – Chicago, IL
- 05/2006 University of Tokyo Topology Seminar – Tokyo, Japan
- 05/2006 Tokyo University of Science Seminar on “Singularity theory, geometry and related topics” – Tokyo, Japan
- 03/2006 Stony Brook University Algebra, Geometry and Physics Seminar – Stony Brook, NY
- 02/2006 University of Indiana–Bloomington Topology Seminar – Bloomington, IN
- 10/2005 University of Illinois at Chicago Graduate Student Colloquium – Chicago, IL
- 08/2005 University of Illinois at Chicago Algebraic Geometry Seminar – Chicago, IL
- 01/2005 Northeastern University Geometry-Algebra-Singularities-Combinatorics Seminar – Boston, MA
- 12/2004 University of Pennsylvania Geometry & Topology Seminar – Philadelphia, PA
- 09/2004 University of Illinois at Chicago Algebraic Geometry Seminar – Chicago, IL

## Summer School Courses, Minicourses

- 2024 *“Singularities through the lens of characteristic classes”*, three 1-hour lectures at the *Conference on singularities and birational geometry*, Yonsei University, Seoul, Korea, 01/2024
- 2023 *“Applications of singularity theory to optimization”*, four 50-minute lectures at the *Research School Singularities and Applications*, University of Lille, France, 06/2023
- 2023 *“Fundamental groups of complex quasiprojective manifolds and their Alexander type invariants”*, in-a-nutshell mini-course at the 115AM Conference *Algebraic and topological interplay of algebraic varieties* in honor of E. Artal and A. Melle, Jaca, Spain, 06/2023
- 2022 *“Topology of complex projective hypersurfaces”*, five 45-minute lectures at the *CIMPA Research School “Singularities and Applications”*, Sao Carlos, Brazil, 07/2022
- 2021 *“Topology of complex projective hypersurfaces and of their complements”*, four 1.5-hour lectures at the *CIMPA Research School “Singularities and Applications”*, online, 07/2021
- 2016 *“Characteristic Classes of Stratified Spaces”*, two 1-hour lectures at the *Topology, Stratified Spaces and Particle Physics Summer School*, Fields Institute, Toronto, Canada, 08/2016
- 2016 *“Topology of Singularities”*, six 2-hour lectures at the *MIST IV Workshop*, CUHK, Hong Kong, 04-05/2016
- 2015 *“Intersection Homology”*, six 2-hour lectures at the *2015 Geometry Summer School*, USTC, Hefei, China, 05-06/2015
- 2014 *“Basic introduction to Topology”*, five 2-hour lectures at the *2014 Geometry Summer School*, USTC, Hefei, China, 07/2014
- 2012 *“Introduction to Algebraic Topology”*, eight 3-hour lectures at the *2012 Geometry Summer School*, USTC, Hefei, China, 06/2012
- 2011 *“Topics in Algebraic Topology”*, thirteen 3-hour lectures at the *2011 Geometry Summer School*, USTC, Hefei, China, 05-07/2011
- 2010 *“Topics in Algebraic Topology”*, eight 2-hour lectures at the *2010 Geometry Summer School*, USTC, Hefei, China, 05-06/2010

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## Teaching Experience

- Fall 2023 *Calculus and Analytic Geometry II* (Math 222), University of Wisconsin-Madison  
*Algebraic Topology I* (Math 753), University of Wisconsin-Madison
- Spring 2023 *Introductory Topology II* (Math 752), University of Wisconsin-Madison
- Spring 2022 *Analysis, I* (Math 521), University of Wisconsin-Madison
- Fall 2021 *Elementary Topology* (Math 551), University of Wisconsin-Madison  
*Introductory Topology I* (Math 751), University of Wisconsin-Madison
- Spring 2021 *Topics in Algebraic Topology* (Math 853), University of Wisconsin-Madison
- Fall 2020 *Elementary Matrix and Linear Algebra* (Math 340), University of Wisconsin-Madison
- Fall 2019 *Calculus and Analytic Geometry I* (Math 221), University of Wisconsin-Madison
- Summer 2019 *Elementary Matrix and Linear Algebra* (Math 340), University of Wisconsin-Madison  
*The Theory of Single Variable Calculus* (Math 421), University of Wisconsin-Madison
- Spring 2019 *Calculus and Analytic Geometry I* (Math 221), University of Wisconsin-Madison
- Fall 2018 *Calculus and Analytic Geometry I* (Math 221), University of Wisconsin-Madison
- Summer 2018 *Elementary Matrix and Linear Algebra* (Math 340), University of Wisconsin-Madison  
*The Theory of Single Variable Calculus* (Math 421), University of Wisconsin-Madison
- Spring 2018 *Algebraic Topology II* (Math 754), University of Wisconsin-Madison
- Fall 2017 *Linear Algebra and Differential Equations* (Math 320), University of Wisconsin-Madison
- Spring 2017 *Calculus* (Math 211), University of Wisconsin-Madison
- Fall 2016 *Honors Calculus I* (Math 375), University of Wisconsin-Madison  
*Topics in Algebraic Topology* (Math 853), University of Wisconsin-Madison
- Fall 2014 *Honors Calculus I* (Math 375), University of Wisconsin-Madison  
*Introductory Topology I* (Math 751), University of Wisconsin-Madison
- Spring 2014 *Honors Calculus II* (Math 376), University of Wisconsin-Madison  
*Elementary Geometric and Algebraic Topology* (Math 552), University of Wisconsin-Madison
- Fall 2013 *Algebraic Topology I* (Math 753), University of Wisconsin-Madison
- Spring 2013 *Introductory Topology II* (Math 752), University of Wisconsin-Madison  
*Geometry for College Students* (Math 461), University of Wisconsin-Madison  
*Elementary Geometric and Algebraic Topology* (Math 552), Undergraduate Directed Study, University of Wisconsin-Madison
- Fall 2012 *Topics in Algebraic Topology* (Math 853), University of Wisconsin-Madison
- Spring 2012 *Introductory Topology II* (Math 752), University of Wisconsin-Madison
- Fall 2011 *Calculus and Analytic Geometry I* (Math 221), University of Wisconsin-Madison
- Spring 2011 *Introduction to Modern Algebra* (Math 441), University of Wisconsin-Madison
- Fall 2010 *Introductory Topology I* (Math 751), University of Wisconsin-Madison  
*Algebraic Topology I* (Math 753), University of Wisconsin-Madison
- Spring 2010 *Introductory Topology II* (Math 752), University of Wisconsin-Madison  
*Calculus and Analytic Geometry I* (Math 221), University of Wisconsin-Madison
- Fall 2009 *Introductory Topology I* (Math 751), University of Wisconsin-Madison
- Spring 2009 *Financial Mathematics*, CUNY-Lehman College

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- Topology, CUNY-Graduate Center  
 Fall 2008 *Precalculus*, CUNY-Lehman College  
*Probability*, CUNY-Lehman College  
 Spring 2008 *Analysis I*, CUNY-Lehman College  
*Calculus II Maple Lab*, CUNY-Lehman College  
 Fall 2007 *Calculus II*, CUNY-Lehman College  
*Calculus II Maple Lab*, CUNY-Lehman College  
 Spring 2007 *Advanced Topics in Geometric and Differential Topology*, University of Illinois at Chicago  
 Fall 2006 *Applied Linear Algebra*, University of Illinois at Chicago  
 Spring 2006 *Multivariable Calculus/Vector Analysis*, New York University  
 Fall 2005 *Calculus III*, University of Illinois at Chicago  
 Summer 2002 *Precalculus*, University of Pennsylvania  
 Summer 2001 *Calculus*, University of Pennsylvania

## Selected Research Visits

- 2024 *Isaac Newton Institute for Mathematical Sciences* (University of Cambridge, UK), 02-05/2024  
 2023 *Institute of Mathematics of the Romanian Academy* (Bucharest, Romania), 06-08/2023  
 2022 *Max Planck Institute* (Bonn, Germany), 09-12/2022, sabbatical  
 2022 *CNRS Visitor*, University of Lille (France)  
 2022 *Research in Pairs at Oberwolfach* (MFO, Oberwolfach, Germany), 06/11-06/23/2022  
 2022 *Research in Pairs at Centro Internazionale per la Ricerca Matematica* (CIRM, Trento, Italy), 05/30-06/10/2022  
 2021 *Visiting Researcher at the Centre Européen Pour Les Mathématiques, La Physique Et Leur Interactions*, University of Lille (France), 06/01-06/30/2021  
 2020 *Visiting Researcher at the Sydney Mathematical Research Institute*, University of Sydney (Australia), 01/15-03/15/2020  
 2019 *Basque Center for Applied Mathematics* (Bilbao, Spain), 05/2019  
 2016 *Chinese University of Hong Kong* (Hong Kong), 04-05/2016 (invited by Prof. Conan Leung)  
 2015–2016 *Max Planck Institute* (Bonn, Germany), 08/2015-07/2016, sabbatical year  
 2013 *Max Planck Institute* (Bonn, Germany), 05-08/2013  
 2012 *Chinese University of Hong Kong* (Hong Kong), 06/2012 (invited by Prof. Conan Leung)  
 2012 *Centro de Investigación en Matemáticas* (Guanajuato, Mexico), 05/2012 (invited by Prof. Xavier Gómez Mont)  
 2010 *Max Planck Institute* (Bonn, Germany), 07-08/2010  
 2010 *University of Science and Technology of China* (Hefei, China), 05-06/2010 (invited by Prof. Xiuxiong Chen)  
 2007–2009 *Research Fellow*, at *Courant Institute of Mathematical Sciences, NYU*  
 2006 *Research Scientist*, at *Courant Institute of Mathematical Sciences, NYU*, 07/2006, 12/2006 (invited by Prof. Sylvain Cappell)  
 2006 *Tokyo University of Sciences* (Tokyo, Japan), 05/2006 (invited by Prof. Mutsuo Oka)

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## Synergistic Activities

### Conference organization

- 2024 *Characteristic classes of singular spaces*, celebrating the 60th anniversary of Prof. Jörg Schürmann, Zhejiang University, Hangzhou, China, August 5-9, 2024
- 2024 *Suzhou Workshop on Matroid Theory*, Soochow University, Suzhou, China, July 8-12, 2024
- 2023 *Geometry, Topology and Algebra of Singular Spaces*, celebrating the 70th anniversary of Alex Suciu and Laurențiu Păunescu, Institute of Mathematics of the Romanian Academy, Bucharest, Romania, July 7-11, 2023
- 2023 Special Session on *Geometry and Topology of Algebraic Varieties*, at the Tenth Congress of Romanian Mathematicians, Pitești, Romania, June 30 - July 5, 2023
- 2023 *Algebraic and Topological Interplay of Algebraic Varieties*, celebrating the 60th Birthday of Enrique Artal and the 55th Birthday of Alejandro Melle, Jaca, Spain, June 12-17, 2023
- 2023 Special Session on *Singer-Hopf Conjecture in Geometry and Topology*, at the Spring Southeastern Sectional Meeting, Georgia Institute of Technology, Atlanta, GA, March 18-19, 2023
- 2023 *Singularities in the Midwest Workshop, VIII*, Madison, WI, March 9-13, 2023
- 2021 *TIBĂR60 Conference*, celebrating Mihai Tibăr's 60th anniversary (online), September 10-11, 2021
- 2021 *Singularities in the Midwest*, online edition, March 10-14, 2021
- 2021 *Suzhou Workshop on Geometry, Combinatorics and Representation Theory*, Soochow University, Suzhou, China, July 12-15, 2021. (cancelled because of the COVID19 pandemic)
- 2020 *Singularities in the Midwest Workshop, VII.*, Madison, WI, March 20-22, 2020. (cancelled because of the COVID19 pandemic)
- 2019 Special Session on *Geometry and Topology of Singularities*, at the Fall Central Sectional AMS Meeting, University of Wisconsin-Madison, Madison, WI, September 14-15, 2019
- 2019 *Singularities in the Midwest Workshop, VI.*, Madison, WI, March 15-16, 2019
- 2018 Special Session on *Singularities in Geometry, Topology and Algebra*, at the Joint International Meeting of the American Mathematical Society and the Chinese Mathematical Society, Fudan University, Shanghai, China, June 11-14, 2018
- 2018 *Workshop for young researchers in mathematics*, Bucharest, Romania, May 17-18, 2018
- 2018 *Singularities in the Midwest Workshop, V.*, Madison, WI, March 23-24, 2018
- 2017 Oberwolfach Mini-Workshop: *Interactions between Low-dimensional Topology and Complex Algebraic Geometry*, Oberwolfach, Germany, October 22-28, 2017
- 2017 *Singularity Theory Conference*, East China Normal University, Shanghai, China, July 10-14, 2017
- 2017 *Workshop for young researchers in mathematics*, Bucharest, Romania, May 17-21, 2017
- 2017 *Singularities in the Midwest Workshop, IV.*, Madison, WI, March 17-19, 2017
- 2016 Focus Program on *Topology, Stratified Spaces and Particle Physics*, Fields Institute, Toronto, Canada, August 8-26, 2016
- 2016 *Workshop for young researchers in mathematics*, Constanta, Romania, May 18-21, 2016
- 2016 *Singularities in the Midwest Workshop, III.*, Madison, WI, March 21-24, 2016
- 2015 Special Session on *Singularities in Algebra, Geometry and Topology* at the 2015 Central Fall Sectional AMS Meeting, Chicago, IL, October 3-4, 2015

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- 2015 *Computational Geometric Topology in Arrangement Theory*, ICERM-Brown University, July 6-10, 2015
- 2015 Special Session on *Geometry and Topology of Differentiable Manifolds and Algebraic Varieties* at the Eighth Congress of Romanian Mathematicians, Iasi, Romania, June 26 - July 1, 2015
- 2015 *Workshop for young researchers in mathematics*, Constanta, Romania, May 21-24, 2015
- 2015 *Stratified spaces in geometric and computational topology and physics*, Madison, WI, March 30-April 2, 2015
- 2013 Special Session on *Singularities in Geometry and Topology* at the 2nd PRIMA Congress, Shanghai Jiaotong University, Shanghai, China, June 24-28, 2013
- 2013 Special Session on *Singular Spaces in Geometry, Topology, and Algebra* at the Spring Western Sectional AMS Meeting, Boulder, CO, April 13-14, 2013
- 2012 *Singularities in the Midwest Workshop, II.*, Madison, WI, March 22-24, 2012
- 2011 *International Conference on Singularity Theory and Applications*, University of Science and Technology of China, Hefei, China, July 25-31, 2011
- 2010 *Singularities in the Midwest Workshop*, Madison, WI, March 19-20, 2010
- 2008 *Topology of Stratified Spaces*, MSRI Workshop, Berkeley, CA, September 8-12, 2008

### Seminar organization

- 2012–present *Topology and Singularities Seminar*, University of Wisconsin-Madison (online since 2020)
- 2010–2012 *Mathematics Colloquium*, University of Wisconsin-Madison
- 2009–2010 *Geometry and Topology Seminar*, University of Wisconsin-Madison
- 2008–2009 *Reading Seminar in Geometry and Topology*, CUNY-Graduate Center
- 2007–2008 *Differential Geometry and Lie Theory Seminar*, CUNY-Graduate Center
- 2006 *Differential Geometry and Topology Seminar*, Courant Institute (NYU)
- 2005–2007 *Algebraic Geometry and Number Theory Seminar*, University of Illinois at Chicago

### Editor

- 2021–2022 Guest Editor for *Proceedings of the Tokyo 2019 Hyper-JARCS Conference*, Topology and its Applications, vol. 313 (2022)
- 2021–2022 Guest Editor for *Proceedings of the 16th International Workshop on Real and Complex Singularities*, Journal of Singularities, vol. 25 (2022)
- 2017–2018 Served on the Editorial Board of *Mathematics* (open access journal)
- 2011–2012 Guest Editor for *Proceedings of the Hefei International Conference on Singularity Theory and Applications*, Journal of Singularities, vol. 5 (2012)
- 2010–2011 Guest Editor for *Topology of Stratified Spaces*, MSRI Publications 58, Cambridge University Press, New York, 2011

### Curriculum development

- 2019 Wrote a graduate textbook *Intersection homology & perverse sheaves, with applications to singularities*, published as a *Springer Graduate Texts in Mathematics*
- 2011–2012 Helped with restructuring the *Calculus Sequence* at the University of Wisconsin-Madison, under the *Madison Initiative for Undergraduates*
- 2009 Developed a *Financial Mathematics* course at the City University of New York, Lehman College

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## Reviewer

National Science Foundation (panelist)

National Security Agency

AMS Mathematical Reviews

Research Foundation Flanders (FWO) expert panel (member)

## Referee for math journals

Mathematische Annalen; Crelle's Journal; Transactions of the American Mathematical Society; Advances in Mathematics; Acta Mathematica; American Journal of Mathematics; Compositio Mathematica; Duke Mathematical Journal; Annales de L'Institut Fourier; International Mathematical Research Notices; Proceedings of London Mathematical Society;  $K$ -theory; Selecta Mathematica; Journal of Topology; Journal of Topology and Analysis; Journal of Algebraic Geometry; Journal of Pure and Applied Algebra; Algebraic & Geometric Topology; Geometriae Dedicata; New York Journal of Mathematics; Proceedings of the American Mathematical Society; Journal of Singularities; European Journal of Mathematics; Canadian Journal of Mathematics; Topology and its Applications; Quarterly Journal of Mathematics; Homology, Homotopy, and Applications; Pacific Journal of Mathematics; etc.

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## Outreach

### Talks for undergraduates

- 03/2022 University of Wisconsin-Madison, Undergraduate Math Club Seminar – Madison, WI
- 10/2016 University of Wisconsin-Madison, Undergraduate Math Club Seminar – Madison, WI
- 04/2012 Madison Math Circle (middle school and high school) – Madison, WI
- 02/2009 Tulane University, Undergraduate Math Club Seminar – New Orleans, LA
- 03/2008 CUNY-Lehman College, CMS Scholarship Lecture – New York City, NY

### Miscellaneous

- 2023 Translator (in Romanian) for the Purple Comet! Math Meet
- 2022 Translator (in Romanian) for the Purple Comet! Math Meet
- 2021 Translator (in Romanian) for the Purple Comet! Math Meet

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## Service at UW-Madison

### University Service

- 2021–2024 *Physical Sciences Divisional Committee*
- 2023–2024 *Hilldale Awards Committee*
- 2021–2022 *Hilldale Awards Committee*
- 2013–2015 *Faculty Senate* (alternate)
- 2011–2013 *Faculty Senate*

### Department Service

- 2023–2024 *Salary Committee*: dealing with merit raises and retention.
- 2023, Spring *Budget Committee*: dealing with department budget decisions and allocation.
- 2021–2023 *Graduate Admissions Committee*
- 2018–2024 *Faculty Affairs Committee* (Chairing during 2021–2022 and 2023–2024): dealing with faculty promotions and review of probationary faculty.

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- 2016–2021 *Conference/Special Lectures/Visitors Committee* (Chairing during 2017–2020): selecting distinguished lecturers, making funding decisions for long-term visitors, making funding decisions for conferences organized in Madison.
- 2020–2021 *Awards Committee*: dealing with faculty/staff/student award nominations.
- 2018–2021 *VISP/MA Committee*: dealing with recruiting master students from Chinese universities.
- 2018–2020 *Salary Committee*: dealing with merit raises and retention.
- 2016–2019 *Awards Committee*: dealing with nominations for faculty and student awards.
- 2016–2018 *Undergraduate Program Committee*: dealing with implementation of technology in our Calculus sequence.
- 2016–2017 *Budget Committee*: dealing with department budget decisions and allocation.
- 2014–2015 *Hiring Committee*: caucus representative for faculty hiring decisions.
- 2014–2015 *Graduate Program Committee*: dealing with graduate student affairs, policies and graduate course proposals.
- 2013–2015 *Undergraduate Advising Committee* (Committee Chair during 2014–2015): dealing with undergraduate advising.
- 2013–2014 *Fundraising/Newsletter Committee*: dealing with fundraising and editing the department newsletter.
- 2013–2014 *TA Evaluation/Policies & Procedures*.
- 2011–2012 *Madison Undergraduate Initiative Committee*: restructuring the calculus sequence at UW-Madison.
- 2010–2012 *Graduate Program Committee*: dealing with graduate student affairs, policies and graduate course proposals.
- 2009–2012 *Colloquium Committee*: running the department colloquium.
- 2009–2010 *Library Committee*.

## Postdocs Mentored

- 2019–2022 Brian Hepler
- 2015–2017 Botong Wang
- 2015–2018 Alexandra Kjuchukova
- 2014–2017 Manuel Gonzalez Villa

## Graduate Students

- 2026 Rajat Srivastava (Ph.D., UW-Madison), expected
- 2026 Jack Messina (Ph.D., UW-Madison), expected
- 2023 Alexander Hof (Ph.D., UW-Madison)
- 2019 Eva Elduque (Ph.D., UW-Madison)
- 2019 Christian Geske (Ph.D., UW-Madison)
- 2016 Kai Ho Wong (Ph.D., UW-Madison)
- 2016 Yun Su (Ph.D., UW-Madison)
- 2015 Yongqiang Liu (Ph.D., USTC, China)

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