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 Illinios 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

2024–2029   *Simons Foundation Travel Support for Mathematicians* MPS-TSM-00007095: "Topological methods in algebraic geometry"

2024–2026   *"Singularities and Applications"* grant (Senior Researcher) - PNRR-III-C9-2023-I8 - Project CF 132/31.07.2023, funded by the European Union - NextGenerationEU - through Romania's National Recovery and Resilience Plan

2024–2025   *UW-Madison Fall Competition Award*

2023–2025   *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"

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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"
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

2024	*Weighted Ehrhart theory via equivariant toric geometry*, arXiv:2405.02900. (with J. Schürmann)
2024	*Weighted Ehrhart theory via mixed Hodge modules on toric varieties*, arXiv:2403.17747. (with J. Schürmann)

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2023   *Equivariant toric geometry and Euler-Maclaurin formulae*,
        arXiv:2303.16785.
        (with S. Cappell, J. Schürmann, J. Shaneson)

2023   *Homological criterion for higher Du Bois and higher rational singularities*,
        arXiv:2301.09084.
        (with R. Yang)

Published / Accepted

2024   *Morse numbers of complex polynomials*,
        Journal of Topology 17 (2024), no. 4, e12362.
        (with M. Tibăr)

2024   *Brylinski-Radon transformation and generic projections*,
        Proceedings of the American Mathematical Society 152 (2024), no. 12, 5279–5288.
        (with Y. Liu and B. Wang)

2024   *Hirzebruch-Milnor classes of hypersurfaces with nontrivial normal bundles and applications
        to higher du Bois and rational singularities*,
        International Mathematics Research Notices Vol. 2024, no. 16, 11977–11988.
        (with M. Saito and R. Yang)

2024   *Cohomology of Z-local systems on complex hyperplane arrangement complements*,
        International Mathematics Research Notices Vol. 2024, no. 15, 11092–11103.
        (with Y. Liu and B. Wang)

2024   *Equivariant toric geometry and Euler-Maclaurin formulae – an overview*,
        Revue Roumaine de Mathématiques Pures et Appliquées 69 (2024), 2, 105–128.
        (with S. Cappell, J. Schürmann, J. Shaneson)

2024   *Hodge-theoretic variants of the Hopf and Singer Conjectures*,
        AMS Contemporary Mathematics (accepted 2024); arXiv:2310.14131.
        (with D. Arapura and B. Wang)

2024   *Mixed Hodge structures on Alexander modules*,
        Memoirs of the American Mathematical Society 296 (2024), no. 1479.
        (with E. Elduque, C. Geske, M. Herradón-Cueto and B. Wang)

2024   *On the topology of complex projective hypersurfaces*,
        Research in the Mathematical Sciences 11 (2024), Paper No. 14.

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)

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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 *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)

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, no. 20, 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)

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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)

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)

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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.

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.

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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)

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)

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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 Conference, 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)

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

2024   *Geometry and topology of aspherical manifolds*,
        AMS Contemporary Mathemathics, to appear.
        (with L. Di Cerbo)

2024   *Proceedings of the Conference "Geometry, Topology and Algebra of Singular Spaces"*,
        Revue Roumaine de Mathématique Pures et Appliquées, vol. 69 (2024), no. 2.
        (with C. Joița, R. Popescu and M. Tibăr)

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 (2002).
        (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)

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Invited Talks

Conference Talks

11/2024	*"Characteristic Classes of Singular Varieties and Their Applications"*, Institute of the Mathematical Sciences of the Americas, University of Miami, Miami, FL
8/2024	*"MIST Workshop"*, CUHK, Hong Kong
8/2024	*"Characteristic classes of singular spaces"*, Zhejiang University, Hangzhou, China
7/2024	*"Suzhou Workshop on Matroid Theory"*, Soochow University, Suzhou, China
7/2024	*"The 4th Symposium in Geometry and Differential Equations"*, USTC, Hefei, China
4/2024	*"Complex Singularities in Spring"*, Lille, France
3/2024	Workshop on *"Singularity theory and hyperbolicity"*, Newton Institute, Cambridge, UK
3/2024	*Cambridge Singularity Day*, Newton Institute, Cambridge, UK
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"*, Northeaster 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 Singularities"*, 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
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

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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
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

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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
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

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Seminar Talks

10/2024	Babeș-Bolyai University Geometry & Topology Seminar – Cluj, Romania (online)
07/2024	Tsinghua University, Yau Mathematical Science Center, Geometric Representation Theory Seminar – Beijing, China
07/2024	Tongji University Algebraic Geometry Seminar – Shanghai, China
05/2024	Institute of Mathematics of the Romanian Academy, Topology Seminar – Bucharest, Romania
05/2024	London Institute of Mathematical Sciences Seminar – London, England
04/2024	Autonomous University of Madrid Commutative Algebra, Algebraic and Arithmetic Geometry Seminar – Madrid, Spain
04/2024	University of Lille Algebraic Geometry Seminar – Lille, France
03/2024	Institute of Mathematics of the Romanian Academy, Topology Seminar – Bucharest, Romania
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

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

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11/2013	University of Missouri - St. Louis Colloquium – St. Louis, MO
10/2013	Vanderbilt University Geometry Seminar – Nashville, TN
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

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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

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"*, two 1-hour lectures at the Conference *Structures on singular spaces through the lens of characteristic classes*, Heidelberg University, Heidelberg, Germany, 09/2024

2024   *"Applications of Singularity theory to Optimization"*, four 1-hour lectures at the Research School *Topology and Algebra of Singularities and their Applications*, Ovidius University, Constanta, Romania, 09/2024

2024   *"Singularities through the lens of characteristic classes"*, three 1-hour lectures at the *Workshop on Singularity Theory*, USTC, Hefei, China, 08/2024

2024   *"Geometry and topology of complex projective hypersurfaces and of their complements"*, five 2-hour lectures at the *International Summer School*, Tongji University, Shanghai, China, 07/2024

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

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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

Teaching Experience

Spring 2025	*Introductory Topology II* (Math 752), University of Wisconsin-Madison
Fall 2024	*Introductory Topology I* (Math 751), University of Wisconsin-Madison
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

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	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
	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	*Institute of Geometry and Physics* (University of Science and Technology of China, Hefei, China), 06-08/2024
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

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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)

Synergistic Activities

Conference organization

2024	Special Session on *Singularities*, at the Joint meeting of the NZMS, AustMS and AMS, University of Auckland, New Zealand, December 9-13, 2024
2024	*Structures on singular spaces through the lens of characteristic classes*, celebrating the 60th anniversary of Prof. Jörg Schürmann, Heidelberg University, Heidelberg, Germany, September 16-20, 2024
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 Laurenju 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

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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

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

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Seminar organization

2012–2023 *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

2023–2024 Guest Editor for *Geometry and topology of aspherical manifolds*, AMS Contemporary Mathematics, to appear.

2023–2024 Guest Editor for *Proceedings of the Conference "Geometry, Topology and Algebra of Singular Spaces"*, Revue Roumaine de Mathématique Pures et Appliquées, vol. 69 (2024), no. 2.

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

Reviewer

National Science Foundation (panelist)

National Security Agency

AMS Mathematical Reviews

Research Foundation Flanders (FWO) expert panel (member)

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Referee for math journals

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

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

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

2024–2025	*Hiring Committee*: caucus representative for faculty hiring decisions.
2024–2025	*Graduate Admissions Committee*
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*
2018–2025	*Faculty Affairs Committee* (Chairing during 2021–2022 and 2023–2025): dealing with faculty promotions and review of probationary faculty.
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

2027 Jacob Wood (Ph.D., UW-Madison), expected

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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