

# Laurentiu Maxim – Curriculum Vitae

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- Education**
- Ph.D. in Mathematics, UNIVERSITY OF PENNSYLVANIA, May 2005.
  - Master in Mathematics, UNIVERSITY OF BUCHAREST, ROMANIA, June 1999.
  - B.A. and Diploma in Mathematics, UNIVERSITY OF BUCHAREST, ROMANIA, June 1997.
- Appointments**
- Assistant Professor, UNIVERSITY OF WISCONSIN-MADISON, since 2009.
  - Research Fellow, COURANT INSTITUTE, NEW YORK UNIVERSITY, 2007 – 2009.
  - Doctoral Faculty, CITY UNIVERSITY OF NEW YORK, GRADUATE CENTER, 2009.
  - Assistant Professor, CITY UNIVERSITY OF NEW YORK, LEHMAN COLLEGE, 2007 – 2009.
  - Research Assistant Professor, UNIVERSITY OF ILLINOIS AT CHICAGO, 2005 – 2007.
  - Courant Instructor, COURANT INSTITUTE, NEW YORK UNIVERSITY, Spring 2006.
  - Research Fellow, INSTITUTE OF MATHEMATICS OF THE ROMANIAN ACADEMY, since 1998.
- Awards, Fellowships**
- *NSF research grant* DMS-1005338: “Geometry and Topology of Singularities”, 2010-2013.
  - *NSF award* #1104329: “International Conference on Singularity Theory and Applications”, for a conference held at USTC (Hefei, China) during July 25-31, 2011.
  - The “*Dimitrie Pompeiu*” *Mathematics Prize* of the Romanian Academy, 2008 (awarded 2010).
  - 2010 – 2011 *Fall Competition Award* (University of Wisconsin-Madison).
  - *PSC-CUNY Research Award* # 62295-00 40, 2009 – 2010.
  - *PSC-CUNY Research Award* (PSCOOC-39-20), 2008 – 2009.
  - *MSRI Award* (with Greg Friedman, Eugénie Hunsicker and Anatoly Libgober) for Workshop on the “Topology of Stratified Spaces”, September 8-12, 2008, Berkeley, CA.
  - *NYU Research Challenge Fund* award, 2006.
  - *ICM 2006 - NSF Travel Award*, NSF support for attending the ICM 2006, Madrid, Spain.
  - *European Union “Tempus” Fellowship*, University of Dortmund, Germany, March-May 1998.
- Publications, Preprints**
- *Intersection homology and Alexander modules of hypersurface complements*, **Comm. Math. Helvetici** 81 (2006), no. 1, 123-155.
  - *A decomposition theorem for the peripheral complex associated with hypersurfaces*, **Int. Math. Res. Not.** 43 (2005), 2627-2656.
  - *Multivariable Alexander invariants of hypersurface complements*, **Trans. Amer. Math. Soc.** 359 (2007), no. 7, 3505-3528.  
(with A. Dimca)
  - *On the Alexander invariants of hypersurface complements*, in **Singularity Theory**, Proceedings of the 2005 Marseille Singularity School and Conference, World Scientific, 2007, 725-744.
  - *Higher-order Alexander invariants of plane algebraic curves*, **Int. Math. Res. Not.**, Volume 2006 (2006), Article ID 12976, 23 pages.  
(with C. Leidy)

- *Euler characteristics of algebraic varieties*,  
**Comm. Pure Appl. Math.** 61 (2008), no. 3, 409-421.  
(with S. Cappell and J. Shaneson)
- *Hodge genera of algebraic varieties, I.*,  
**Comm. Pure Appl. Math.** 61 (2008), no. 3, 422-449.  
(with S. Cappell and J. Shaneson)
- *Obstructions on fundamental groups of plane curve complements*,  
in “*Real and Complex Singularities*”, **Contemp. Math.** 459 (2008), 117-130.  
(with C. Leidy)
- *Hodge genera and characteristic classes of complex algebraic varieties*,  
**Electron. Res. Announc. Math. Sci.** 15 (2008), 1 - 7.  
(with S. Cappell, A. Libgober and J. Shaneson)
- *Hodge genera of algebraic varieties, II.*,  
**Math. Ann.** 345 (2009), no. 4, 925-972.  
(with S. Cappell, A. Libgober and J. Shaneson)
- *$L^2$ -Betti numbers of plane algebraic curves*,  
**Michigan Math. J.** 58 (2009), no. 2, 411-421.  
(with S. Friedl and C. Leidy)
- *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)
- *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)
- *Equivariant genera of complex algebraic varieties*,  
**Int. Math. Res. Not.** Vol. 2009, no. 11, 2013–2037.  
(with S. Cappell and J. Shaneson)
- *On Milnor classes of complex hypersurfaces*,  
in “*Topology of Stratified Spaces*”, **MSRI Publ.** 58, Cambridge University Press (2011), 161–175.
- *Characteristic classes of complex hypersurfaces*,  
**Adv. Math.** 225 (2010), no. 5, 2616-2647.  
(with S. Cappell, J. Schürmann and J. Shaneson)
- *Hodge polynomials of singular hypersurfaces*,  
**Michigan Math. J.** 60 (2011), no. 3, 661-673.  
(with A. Libgober)
- *Hirzebruch invariants of symmetric products*,  
in “*Topology of Algebraic Varieties and Singularities*”, **Contemp. Math.** 538 (2011), 163-177.  
(with J. Schürmann)
- *Symmetric products of mixed Hodge modules*,  
**J. Math. Pures Appl.** 96 (2011), no. 5, 462-483.  
(with M. Saito and J. Schürmann)
- *Twisted genera of symmetric products*,  
**Selecta Math. (N.S.)** 18 (2012), no. 1, 283-317  
(with J. Schürmann)
- *Equivariant characteristic classes of complex algebraic varieties*,  
arXiv:1004.1844, **Comm. Pure Appl. Math.** (to appear).  
(with S. Cappell, J. Schürmann and J. Shaneson)
- *Characteristic classes of symmetric products of complex quasi-projective varieties*,  
arXiv:1008.4299.  
(with S. Cappell, J. Schürmann, J. Shaneson and S. Yokura)

- *Deformation of singularities and the homology of intersection spaces*, arXiv:1101.4883.  
(with M. Banagl)
- *$L^2$ -Betti numbers of hypersurface complements*, arXiv:1202.0844.

## Teaching Experience

- **University of Wisconsin-Madison:** *Introduction to Modern Algebra* (Spring 2011); *Algebraic Topology I* (Fall 2010); *Introductory Topology II* (Spring 2010, Spring 2012); *Calculus and Analytic Geometry I* (Spring 2010, Fall 2011); *Introductory Topology I* (Fall 2009, Fall 2010).
- **CUNY-Graduate Center:** *Topology* (Spring 09).
- **CUNY-Lehman College:** *Financial Mathematics* (Spring 09); *Probability* (Fall 08); *Precalculus* (Fall 08), *Analysis I* (Spring 08); *Calculus II* (Fall 07); *Calculus II Maple Lab* (Spring 08, Fall 07).
- **University of Illinois at Chicago:** *Advanced Topics in Geometric and Differential Topology* (Spring 07); *Applied Linear Algebra* (Fall 06); *Calculus III* (Fall 05).
- **New York University:** *Multivariable Calculus / Vector Analysis*, (Spring 06).
- **University of Pennsylvania:** *Calculus* (Summer 01); *Precalculus* (Summer 02).

## Summer School Courses

- *Intersection Homology and Applications to Singularity Theory*, eight 2-hour lectures at the *2010 Geometry Summer School*, USTC, Hefei, China – 05-06/2010.
- *Topics in Algebraic Topology*, thirteen 3-hour lectures at the *2011 Geometry Summer School*, USTC, Hefei, China – 05-07/2011.

## Conference Talks

- Special Session on “Singularities in Commutative Algebra and Algebraic Geometry” at the 2012 Spring Central Section Meeting – Lawrence, Kansas – 03/12.
- Iberian Meeting on Algebraic Analysis and Geometry – Lisbon, Portugal – 09/11.
- Latin American School of Algebraic Geometry and Applications – Cordoba, Argentina – 08/11.
- Seminar on Singularity Theory and Related Topics - Beijing, China – 07/11.
- The Seventh Congress of Romanian Mathematicians – Brasov, Romania – 06-07/11.
- Special Session on “Complex Algebraic Geometry” at the Joint Meeting of the AMS-SOMACHI – Pucón, Chile – 12/10.
- Special Session on “Singularities in Algebraic Geometry” at the 2010 Fall Central Section Meeting – Notre Dame, IN – 11/10.
- “Summer School and Conference on Hodge Theory and Related Topics” – ICTP, Trieste, Italy – 06-07/10.
- Special Session on “Homotopy Theory and Geometric Aspects of Algebraic Topology” at the 2010 Spring Southeastern Sectional Meeting – Lexington, KY – 03/10.
- Special Session on “Knot Theory and Related Topics” at the Joint Meeting of the AMS-KMS – Seoul, Korea – 12/09.
- “Singularities” – Oberwolfach, Germany – 09/09.
- “Topology of Algebraic Varieties” – Jaca, Spain – 06/09.
- “Algebraic Geometry, D-modules and Foliations” – Buenos Aires, Argentina – 07/08.
- “International Conference in Algebraic Geometry” – IMAR, Bucharest, Romania – 07/08.
- “Knot Theory: Fifty Years since Fox and Milnor” – Brandeis University – 06/08.
- “Singularities in Geometry and Topology” – Courant Institute, NYC, NY – 03/08.
- Special Session on “Higher Dimensional Geometry” at the IV Iberoamerican Conference on Complex Geometry – Ouro Preto, Brazil – 08/07.

- AMS Special Session on “Arrangements and Related Topics” – New Orleans, LA – 01/07.
- CIMPA-UNESCO-SPAIN School “New Trends in Singularity Theory”, ICM 2006 Satellite Activity – Universidad Complutense de Madrid, Spain – 08/06.
- ICM Satellite Conference on Algebraic Geometry – Segovia, Spain – 08/06.
- “Recent Developments in Arrangements and Configuration Spaces” – MSRI, Berkeley, CA – 08/06.
- 9<sup>th</sup> International Workshop on Real and Complex Singularities – ICMC-USP-Sao Carlos, Brazil – 07/06.
- International Symposium on Singularity Theory and its Applications – Beijing, China – 05/06.
- AMS Special Session on “Arrangements and Configuration Spaces” – Durham, NH – 04/06.
- Hyperplane Arrangements Workshop – PIMS-UBC, Canada – 08/05.
- “Submanifolds, Singular Varieties, and Stratified Spaces” – Courant Institute, NYC, NY – 03/05.
- “Singularities” – CIRM-LUMINY, Marseille, France – 01-02/05.
- Workshop on “Topology of Arrangements and Applications” – MSRI, Berkeley, CA – 10/04.
- “Lehigh Geometry-Topology Conference” – Bethlehem, PA – 06/04.

## Seminar Talks

- University of Wisconsin-Madison Algebraic Geometry Seminar – Madison, WI – 02/12.
- University of Wisconsin-Madison Geometry & Topology Seminar – Madison, WI – 02/12.
- New York University Geometric Analysis and Topology Seminar – New York City, NY – 11/11.
- East China Normal University Topology Seminar – Shanghai, China – 06/11.
- Michigan State University Algebra Seminar – East Lansing, MI – 03/11.
- Iowa State University Colloquium – Ames, IA – 02/11.
- University of Wisconsin-Madison Geometry & Topology Seminar – Madison, WI – 02/11.
- Northeastern University Colloquium – Boston, MA – 01/11.
- University of Heidelberg Topology Seminar – Heidelberg, Germany – 07/10.
- New York University Geometric Analysis and Topology Seminar – New York City, NY – 04/10.
- University of Illinois at Chicago Algebraic Geometry Seminar – Chicago, IL – 02/10.
- University of Notre Dame Algebra Seminar – South Bend, IN – 11/09.
- University of Wisconsin-Madison Algebraic Geometry Seminar – Madison, WI – 10/09.
- University of Wisconsin-Madison Geometry & Topology Seminar – Madison, WI – 09/09.
- CUNY Commutative Algebra & Algebraic Geometry Seminar – New York City, NY – 02/09.
- Tulane University Colloquium – New Orleans, LA – 02/09.
- University of Iowa Colloquium – Iowa City, Iowa – 02/09.
- University of Wisconsin-Madison Colloquium – Madison, WI – 01/09.
- Rutgers University Colloquium – Piscataway, NJ – 01/09.
- UC Santa Cruz Colloquium – Santa Cruz, CA – 01/09.
- Syracuse University Colloquium – Syracuse, NY – 01/09.
- Purdue University Colloquium – West Lafayette, IN – 12/08.
- Ohio State University Algebraic Geometry Seminar – Columbus, OH – 09/08.
- CUNY-Graduate Center Topology Seminar – New York City, NY – 04/08.
- CUNY-Lehman College CSM Scholarship Lecture – New York City, NY – 03/08.

- Wesleyan University Mathematics Colloquium – Middletown, CT – 03/08.
- Northeastern University Geometry-Algebra-Singularities-Combinatorics Seminar – Boston, MA – 12/07.
- University of Illinois at Chicago Algebraic Geometry Seminar – Chicago, IL – 10/07.
- Stony Brook University Algebra, Geometry and Physics Seminar – Stony Brook, NY – 09/07.
- University of Illinois at Chicago Algebraic Geometry Seminar – Chicago, IL – 03/07.
- CUNY-Lehman College Mathematics Colloquium – New York City, NY – 02/07.
- New York University Differential Geometry and Topology Seminar – New York City, NY – 02/07.
- University of Oregon Mathematics Colloquium – Eugene, OR – 02/07.
- University of Western Ontario Mathematics Colloquium – London, Ontario, Canada – 01/07.
- University of Wisconsin–Madison Algebraic Geometry Seminar – Madison, WI – 12/06.
- University of Chicago Algebraic Geometry Seminar – Chicago, IL – 10/06.
- The University of Tokyo, Graduate School of Mathematical Sciences Topology Seminar – Tokyo, Japan – 05/06.
- Tokyo University of Science Seminar on “Singularity theory, geometry and related topics” – Tokyo, Japan – 05/06.
- Stony Brook University Algebra, Geometry and Physics Seminar – Stony Brook, NY – 03/06.
- University of Indiana–Bloomington Topology Seminar – Bloomington, IN – 02/06.
- University of Illinois at Chicago Graduate Student Colloquium – Chicago, IL – 10/05.
- University of Illinois at Chicago Algebraic Geometry Seminar – Chicago, IL – 08/05.
- Northeastern University Geometry-Algebra-Singularities-Combinatorics Seminar – Boston, MA – 01/05.
- University of Pennsylvania Geometry-Topology Seminar – Philadelphia, PA – 12/04.
- University of Illinois at Chicago Algebraic Geometry Seminar – Chicago, IL – 09/04.

## Research Visits

- *Max Planck Institute*, Bonn (Germany), July-August 2010.  
(2-month Research Fellowship)
- *University of Münster*, (Germany), July 2008, July 2009, July 2010  
(invited by Prof. Jörg Schürmann).
- *University of Heidelberg*, (Germany), July 2010  
(invited by Prof. Markus Banagl).
- *University of Science and Technology of China*, (Hefei, China), May-June 2010, May-July 2011.  
(invited by Prof. Xiuxiong Chen).
- *University of Illinois at Chicago*, April 2008  
(invited by Prof. Anatoly Libgober).
- *Research Fellow*, at *Courant Institute of Mathematical Sciences, NYU*, 2007 – 2009.
- *Research Scientist*, at *Courant Institute of Mathematical Sciences, NYU*, December 2006  
(invited by Prof. Sylvain Cappell).
- *Research Scientist*, at *Courant Institute of Mathematical Sciences, NYU*, July 2006  
(invited by Prof. Sylvain Cappell).
- *Tokyo University of Sciences*, Tokyo, Japan, May 2006  
(invited by Prof. Mutsuo Oka).

**Synergistic  
Activities**

• **Conference organization:**

- *Topology of Stratified Spaces*, Mathematical Sciences Research Institute Workshop, Berkeley, CA, September 2008.
- *Singularities in the Midwest Workshop*, Madison, WI, March 2010.
- *International Conference on Singularity Theory and Applications*, University of Science and Technology of China, Hefei, China, July 2011.
- *Singularities in the Midwest Workshop, II.*, Madison, WI, March 2012.
- Special Session on *Singularities in Geometry and Topology* at the 2nd PRIMA Congress, Shanghai Jiaotong University, Shanghai, China, June 2013.

• **Seminar organization:**

- *Mathematics Colloquium*, University of Wisconsin-Madison, 2010 – 2012.
- *Geometry and Topology Seminar*, University of Wisconsin-Madison, 2009 – 2010.
- *Reading Seminar in Geometry and Topology*, CUNY-Graduate Center, 2008 – 2009.
- *Differential Geometry and Lie Theory Seminar*, CUNY-Graduate Center, 2007 – 2008.
- *Algebraic Geometry and Number Theory Seminar*, University of Illinois at Chicago, 2005 – 2007.
- *Differential Geometry and Topology Seminar*, Courant Institute, New York University, Spring 2006 and Fall 2008.

• **Editor:**

- *Topology of Stratified Spaces* (with G. Friedman, E. Hunsiker and A. Libgober)  
Mathematical Sciences Research Institute Publications 58, Cambridge University Press, New York, 2011; ISBN: 9780521191678.

• **Curriculum development:**

- restructuring the *Calculus Sequence* at the University of Wisconsin-Madison, under the *Madison Initiative for Undergraduates* (2011 – 2012).
- *Financial Mathematics* course at the City University of New York, Lehman College (taught during Spring 2009).

• **Reviewer:**

- *National Science Foundation* (panelist).
- *National Security Agency*.
- *AMS Mathematical Reviews*.