

Paolo Aluffi
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Home Address

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Personal:

Born 6/14/1960 in Turin, Italy

Citizenship:

Dual Italian, U.S.

Education:

July 1983: Laurea in Matematica, Università degli Studi di Torino (Italy),
110/110 Cum Laude (A. Collino, relatore)

May 1987: PhD degree in Mathematics, Brown University
(W. Fulton, thesis advisor)

Dissertation: On some characteristic numbers for smooth plane curves

Grants, Honors and Fellowships:

1984–85: Borsa di Studio e Ricerca ‘CNR Estero’ (Italy)

1987–89: NSF Postdoctoral Associate (Project title: Segre classes and intersection formulas; applications to the enumerative geometry of plane curves)

1993: First Year Assistant Professor summer award, FSU

1995: University Teaching award, FSU

1995–98: NSF support, award #9500843, PI, \$62025 (Project title: Topics in Intersection Theory)

1995: Teaching Incentive Program award, FSU

1998: Developing Scholar award, FSU

2001: University Teaching award, FSU

2004–05: NSA support, award #H98230-04-1-0112, PI, \$12549 (Project title: Blow-up algebras, characteristic classes, and enumerative geometry)

2007–09: NSA support, award #H98230-07-1-0024, PI, \$47724 (Project title: Limits in Intersection Theory and Invariants of Singular Spaces)

Academic positions:

1987–89: Dickson Instructor, The University of Chicago

1989–91: Visiting Assistant Professor, Oklahoma State University

1991–95: Assistant Professor, Florida State University (Doctoral Directive Status granted May 1995)

1995–2000: Associate Professor, Florida State University

August 2000–present: Professor, Florida State University

Meetings and Conferences:

Summer Conference on Enumerative Geometry, Sundance, UT, August 1986; *Summer Conference on Algebraic Geometry*, Sundance, UT, August 1988; *Special session in Algebraic Geometry*, Louisville, KY, January 1990; *Special session in Algebraic Geometry*, Fayetteville, AR, March 1990; *Special session in Algebraic*

Geometry, Denton, TX, November 1990; *Special session in Algebraic Geometry*, Fargo, ND, October 1991; *Conference on Hodge theory and singularities*, UC Riverside, CA, April 1993; *Special session in Algebraic Geometry*, Stillwater, OK, October 1994; *Special session in Extremal Riemann Surfaces*, San Francisco, CA, January 1995; *Special session in Toric varieties, intersection theory, and enumerative geometry*, Kent, OH, November 1995; *First international conference in intersection theory*, Bologna, Italy, December 1997; *Workshop on Hodge theory, Mirror symmetry, and Quantum cohomology*, Pisa/Cortona, Italy, May–June 1998; *Symposium on Singularities in geometry and topology*, Sapporo, Japan, July 1998; *Workshop on arrangements of hyperplanes*, Tokyo, Japan, July 1998; *Special session in Singularities in Analytic and Algebraic Geometry*, San Antonio, TX, January 1999; *Groupe de travail “Classes de Milnor”*, Luminy, France, February 1999; *Special session in Algebraic Geometry*, Charlotte, NC, October 1999; *Second international conference in intersection theory*, Bologna, Italy, December 1999; *Special session in Singularities in Analytic and Algebraic Geometry*, Washington, DC, January 2000; *Conference in honor of William Fulton*, Ann Arbor, MI, April 2000; *Résolution des singularités et géométrie non commutative, à la mémoire de Ruth Michler*, Luminy, France, July 2001; *Current Geometry*, Napoli, Italy, September 2001; *Workshop on algebraic stacks, intersection theory, and non-abelian Hodge theory*, MSRI, Berkeley, January 2002; *Characteristic classes of singular varieties*, Banach Center, Warsaw, Poland, April 2002; *Special session on Singularities in Algebraic and Analytic Geometry*, Boston, MA, October 2002; *Special session on Computational Algebraic and Analytic Geometry for Low-Dimensional Varieties*, Baltimore, MD, January 2003; *Workshop on Computational Commutative Algebra*, MSRI, Berkeley, CA, March 2003; *Arbeitstagung*, Bonn, Germany, June 2003; *Special session on Algebraic Geometry and Topology*, (co-organizer), Tallahassee, FL, March 2004; *Enumerative geometry, old and new*, Torino, Italy, June 2004; *Singularités réelles et complexes*, Luminy, France, July 2004; *Conférence générale de singularités*, Luminy, France, February 2005; *Arbeitstagung*, Bonn, Germany, June 2005; *Characteristic classes of singular spaces*, Budapest, Hungary, May 2006; *Arithmetic and geometry around quantization*, Istanbul, Turkey, June 2006; *Moduli Spaces*, Mittag-Leffler Institute, Stockholm, Sweden, April-May 2007; *Arbeitstagung*, Bonn, Germany, June 2007.

Substantial visits:

University of Erlangen, Germany (May-July 1990)
 Max-Planck-Institut für Mathematik, Bonn, Germany (January-June 1992)
 Mathematical Sciences Research Institute, Berkeley (January-June 1993)
 the University of Chicago (May 1994; May 1995; May 1996; May 1997)
 Mathematisches Forschungsinstitut Oberwolfach, Germany (June-July 1996)
 Mittag-Leffler Institut, Stockholm, Sweden (September 1996-April 1997)
 Harvard University (September-December 1999)
 Max-Planck-Institut für Mathematik, Bonn, Germany (July 2000)
 Institut de Mathématiques de Luminy, France (May-July 2001)
 Max-Planck-Institut für Mathematik, Bonn, Germany (September 2001-July 2002)
 Max-Planck-Institut für Mathematik, Bonn, Germany (May-July 2003)
 Max-Planck-Institut für Mathematik, Bonn, Germany (May-July 2004)
 Institut de Mathématiques de Luminy, France (May 2005)
 Max-Planck-Institut für Mathematik, Bonn, Germany (June-July 2005)
 Max-Planck-Institut für Mathematik, Bonn, Germany (June-July 2006)
 Institut de Mathématiques de Luminy, France (January-March 2007)
 Mittag-Leffler Institut, Stockholm, Sweden (April-May 2007)
 Max-Planck-Institut für Mathematik, Bonn, Germany (June-July 2007)

Teaching experience:

Brown University (1984–87):

Elementary Calculus I, II; Intermediate Calculus I, II.

The University of Chicago (1987-89):

Honors Calculus, I, II, III; Abstract Algebra I, II, III; Introduction to Algebraic Geometry.

Oklahoma State University (1989-91):

Business Calculus, Calculus II, Differential Equations, Linear Algebra, Combinatorics, Complex Analysis.

Florida State University:

—Fall 1991: Calculus I (2 sections: 10A, 6B, 9C, 3D, 3F; 5A, 11B, 11C, 2D, 7F);

—Fall 1992: Calculus III (2 sections: 4A, 9B, 14C, 1D, 3F; 4A, 11B, 4C, 3D, 5F);

Algebra seminar;

—Fall 1993: Discrete Mathematics I (7A, 9B, 14C, 5D, 2F);

Algebraic Geometry I (graduate topics; enrollment: 7);

—Spring 1994: Discrete Mathematics II (7A, 13B, 9C, 4D, 2F);

Algebraic Geometry II (graduate topics; enrollment: 5);

—Fall 1994: Calculus III (6A, 8B, 8C, 4D, 6F);

Groups, Rings, Vector Spaces I (graduate; enrollment: 9);

—Spring 1995: Calculus II (7A, 5B, 16C, 4D, 4F);

Groups, Rings, Vector Spaces II (graduate; enrollment: 8);

—Fall 1995: Discrete Mathematics I (6A, 11B, 7C, 6D, 6F);

Abstract Algebra I (graduate; enrollment: 7);

—Spring 1996: Calculus III (10A, 7B, 6C, 4D, 6F);

Abstract Algebra II (graduate; enrollment: 6);

—Fall 1997: Introduction to Abstract Algebra I (5A, 5B, 8C, 1D);

Algebraic Geometry (graduate topics; enrollment: 3);

—Spring 1998: Introduction to Abstract Algebra II (1A, 3B, 1C);

Algebraic Geometry (graduate topics; enrollment: 3);

—Fall 1998: Calculus III (6A, 7B, 6C, 4D, 10F);

College Geometry (3A, 5B, 8C, 2F);

Graduate seminar in Algebraic Geometry;

—Spring 1999: Introduction to Advanced Mathematics (12A, 8B, 7C, 1D, 4F);

Graduate seminar in Algebraic Geometry;

—Spring 2000: Calculus III (9A, 6B, 6C, 4D, 5F);

Algebra seminar;

—Fall 2000: Calculus III (8A, 8B, 10C, 4D, 10F);

Introduction to Abstract Algebra I (5A, 3B, 2C, 1D, 2F);

Algebraic Curves (graduate topics; enrollment: 6);

Algebra seminar.

—Fall 2002: Calculus III (4A, 5B, 8C, 3D, 5F);

Groups, Rings, Vector Spaces I (2A, 3B, 1C);

- Spring 2003: Groups, Rings, Vector Spaces II (2A, 1B+, 1C, 1S).
- Fall 2003: Calculus III (8A, 14B, 11C, 2D, 2F);
Introduction to Abstract Algebra I (1S, 6A, 4B, 4C, 1D, 4F);
Abstract Algebra (5A);
- Fall 2004: Introduction to Abstract Algebra I (7A, 1B, 4C, 1D, 2F);
Groups, Rings, Vector Spaces I (2A, 2B, 2C).
- Spring 2005: Introduction to Abstract Algebra II (6A, 3B, 1C);
Groups, Rings, Vector Spaces II (2A, 4B, 1F);
- Fall 2005: Groups, Rings, Vector Spaces I (6A, 3B);
Groups, Rings, Vector Spaces III (3A, 4B).
- Spring 2006: Groups, Rings, Vector Spaces II (3A, 3B);
Algebraic Geometry (5A);
- Fall 2006: Groups, Rings, Vector Spaces III (3A, 2B, 1D);
Introduction to Abstract Algebra I (2A, 6B, 2C, 2D, 3F).
- Fall 2007: Applied Linear Algebra I (10A, 10B, 5C, 2F);
Introduction to Abstract Algebra I (4A, 4B, 4C, 4F).

Current doctoral student: William Adams.

Former doctoral students:

- Deborah Jones (Ph.D. 2003, Thesis: “Intersection numbers of divisors in graph varieties”)
- Dimitre Tzigantchev (Ph.D. 2006, Thesis: “Predegree polynomials of plane configurations in projective space”).

Service (committees):

- 1992-3: Facilities and technology (self-study)
- 1993-4: Curriculum
- 1994-5: Curriculum; TIP peer evaluation; Library
- 1995-6: Curriculum; FSU math society; Library
- 1997-8: Graduate student recruitment and financial aid; Library
- 1998-9: TIP peer evaluation; Graduate student recruitment and financial aid; Library; Colloquium
- 1999-2000: Preliminary examination policy (chair); Executive; Hiring; Graduate student recruitment and financial aid; Doctoral preliminary examination; Library
- 2000-1: Faculty evaluation; Doctoral preliminary examination; Graduate student recruitment and financial aid; University Senate; Library; Visibility
- 2001-2: *On sabbatical.* Visibility (eprints).
- 2002-3: Faculty evaluation (Fall); Doctoral preliminary examination; Graduate student recruitment and financial aid; Retirement celebration; Visibility; Election
- 2003-4: Doctoral preliminary examination (chair); Faculty evaluation (Spring); Unit assessment survey (‘QER’); Graduate student recruitment and financial aid; Visibility; Election
- 2004-5: Pure mathematics (chair); Chair nomination (chair); Doctoral preliminary examination (chair); Undergraduate major recruitment and retention (chair, through mid-October); Faculty evaluation; Faculty recruitment; Graduate student recruitment and financial aid; Visibility
- 2005-6: Director of pure mathematics; Executive; Faculty evaluation; Visibility
- 2006-7: Director of pure mathematics; Executive; Faculty evaluation; Graduate; Visibility; University

Senate.

—2007-8: Director of pure mathematics (Fall); Executive (Fall); Faculty evaluation (Fall); Graduate; Visibility; University Senate; Statistics Chair search committee.

Advanced topics examination committees: W. Adams (Apr. 98, chair); D. Jones (Dec. 98, chair); B. Goforth (Apr. 99); C. Stockwell (Apr. 99); D. Tzigantchev (Jan. 03, chair); A. Novocin (Feb. 06); R. Todd (Oct. 06); G. Levy (Nov. 06); E. Tatar (Dec. 06); Y. Lebedev (Nov. 07); Q. Yuan (Nov. 07); Y. Cha (Jan. 08).

Master’s committee: J. de Marco (2004, chair).

College representative for Fernando Febres Cordero (Physics, 2004 prospectus; 2007 Ph.D. dissertation, ‘Next-to-leading-order corrections to weak boson production with a massive quark jet pair at hadron colliders’).

Service (to the profession):

—Mathematical Reviews (29 reviews);

—Grant reviewing: N.S.A. (3), N.S.F. (23); Swedish Research Council (5); Dutch ‘Veni’ program (1).

—Panelist for the ANTC program of the NSF, evaluating and ranking 62 grant proposals.

—Journal refereeing: *Advances in Mathematics*; *Aspects of Mathematics*; *Asian Journal of Mathematics*; *American Journal of Mathematics*; *Canadian Journal of Mathematics*; *Communications in Algebra* (3); *Compositio Mathematica* (2); *Contemporary Mathematics* (3); *Duke Math Journal*; *Journal of Algebraic Geometry* (3); *Journal of Geometry*; *Pure and Applied Math Quarterly* (2); *K-theory*; *Mathematische Zeitschrift*; *Proceedings of the American Mathematical Society*; *Rendiconti del circolo matematico di Palermo*; *Springer Lecture Notes*; *Topology and its applications*; *Transactions of the American Mathematical Society* (3).

—Outside Ph.D. thesis examiner for Dmitry Kerner, Tel-Aviv University, 2007

Co-organizer (with Ettore Aldrovandi and Eriko Hironaka) of the Special Session on Algebraic Geometry and Topology at the Sectional Meeting #994 of the AMS, Tallahassee, March 12-13, 2004.

Refereed publications:

1. *The characteristic numbers for smooth plane cubics*, Proceedings of ‘Algebraic Geometry, Sundance 1986’, Springer Lecture Notes 1311, pp. 1–8. The characteristic numbers for the family of smooth plane cubics are computed, verifying results of Maillard and Zeuthen.
2. *The enumerative geometry of plane cubics I: smooth cubics*, Trans. of the Amer. Math. Soc., vol. 317 (1990), pp. 501–539. A variety of complete plane cubics is constructed and employed to obtain a thorough analysis of the enumerative geometry of smooth cubics.
3. *Two characteristic numbers for smooth plane curves of any degree*, Trans. of the Amer. Math. Soc., vol. 329 (1992), pp. 73–96. A sequence of blow-ups over projective spaces parametrizing plane curves is used to obtain enumerative results concerning smooth plane curves of arbitrary degree.
4. *How many smooth plane cubics with given j -invariant are tangent to 8 lines in general position?*, Contemporary Mathematics 123 (1991), pp. 15–29. Formulas are obtained for the characteristic numbers of families parametrized by hypersurfaces in the projective space of plane cubics.
5. *The enumerative geometry of plane cubics II: nodal and cuspidal cubics*, Math. Annalen 289 (1991), pp. 543–572. A variety of complete cubics is used to study the enumerative geometry of several families of irreducible singular plane cubics.
6. *Some characteristic numbers for nodal and cuspidal plane curves of any degree*, Manu. Math. 72 (1991), pp. 425–444. A compactification of the space of reduced plane curves is used to compute characteristic numbers for singular plane curves of arbitrary degree.
7. *Linear orbits of smooth plane curves*, jointly with Carel Faber, Journal of Alg. Geom. 2 (1993), pp. 155–184. A desingularization of the orbit closures of plane curves under the action of the automorphism group of the plane is constructed and used to study such orbits.

8. *Multiplicities of discriminants*, jointly with Fernando Cukierman, *Manu. Math.* 78 (1993), pp. 245–258. The multiplicity of the discriminant of a line bundle over a nonsingular variety at a section is computed in terms of the Segre class of the jacobian scheme of the section.
9. *Linear orbits of d -tuples of points in P^1* , jointly with Carel Faber, *Jour. für die R. und Ang. Math.* 444 (1993), 205–220. Orbit closures of sets of points of the projective line under the action of the automorphism group of the latter are studied in terms of their degree and multiplicity along their boundary.
10. *MacPherson’s and Fulton’s classes of hypersurfaces*, *International Mathematics Research Notices* (1994), 455–465. It is shown that MacPherson’s Chern class of a hypersurface in a smooth variety agrees, at least numerically, with a construction inspired by Fulton’s canonical class of a scheme.
11. *A remark on the Chern class of a tensor product*, jointly with Carel Faber, *Manu. Math.* 88, 85–86 (1995). A short note showing that the $(r + 1)$ -st Chern class of a rank- r element α in the Grothendieck group of vector bundles over a scheme does not change if α is tensored by a line bundle.
12. *A blow-up construction and graph coloring*, *Discrete Math.*, 145 (1995) 11–35. A nonsingular algebraic variety is constructed, encoding the incidence information of a given graph G , and is used to obtain the chromatic polynomial of G in terms of intersection-theoretic information.
13. *Singular schemes of hypersurfaces*, *Duke Math. Journal*, 80 (1995) 325–351. A class is introduced generalizing the notion of Milnor number to possibly nonisolated hypersurface singularities. This is used to recover several results in duality theory, as well as producing new constraints for a scheme to be the jacobian scheme of a hypersurface in a smooth variety.
14. *Characteristic classes of discriminants and enumerative geometry*, *Comm. in Algebra* 26(10), 3165–3193 (1998). We show how computing characteristic classes of strata of the discriminant of a linear system on a nonsingular variety would lead to enumerative results, and carry out these computations in low codimensions. Also, we compute the classes for all strata of the discriminant of d -tuples of points on the projective line, and of cubic curves in the projective plane.
15. *Chern classes for singular hypersurfaces*, *Trans. Amer. Math. Soc.* 351 (1999), 3989–4026. A new formula relating Fulton’s Chern class and MacPherson’s Chern class of a possibly singular hypersurface in a nonsingular variety is proved, and applied to Segre class and Chern class computations.
16. *Weighted Chern-Mather classes and Milnor classes of hypersurfaces*, in ‘Singularities and Arrangements, Sapporo-Tokyo 1998’, *Advanced Studies in Pure Mathematics* 29, p.1–20. We extend the notion of Chern-Mather class to possibly nonreduced schemes, and show how this new notion can be used to compute the difference between Schwartz-MacPherson’s chern class and the class of the virtual tangent bundle of a singular hypersurface of a nonsingular variety.
17. *Plane curves with small linear orbits I*, joint with Carel Faber, *Annales de l’institut Fourier*, 50 (2000), 151–196. A study of the enumerative geometry of the orbits of most plane curves with positive dimensional stabilizer under the action of the group of projective linear transformations of the plane.
18. *Plane curves with small linear orbits II*, joint with Carel Faber, *International Journal of Mathematics*, 11 (2000), 591–608. The completion of the study of plane curves with positive dimensional stabilizer under the action of the group of projective linear transformations of the plane. In this work we analyze curves obtained as unions of lines.
19. *Differential forms with logarithmic poles and Chern-Schwartz-MacPherson classes of singular varieties*, *Comptes Rendus de l’Académie des Sciences, Série I*, 329 (1999), 619–624. We prove a formula for Schwartz-MacPherson’s chern class of a singular variety in terms of the classes of the sheaf of differential forms with logarithmic poles along the components of a divisor arising in the resolution of singularities of the variety. As an application, we obtain a formula for the class of a singular hypersurface in terms of the Mather-Chern class of a suitable sheaf.
20. *Linear orbits of arbitrary plane curves*, joint with Carel Faber, *Michigan Math. Jour.*, 48 (2000), 1–37. We obtain an algorithm computing the degree of the closure of the linear orbit of an arbitrary plane curve, and give explicit formulas for plane curves with irreducible singularities.
21. *Computing characteristic classes for projective schemes*, *Journal of Symbolic Computation* 35 (2003)

- 3-19. We present an algorithm (implemented in `Macaulay2`) computing several classes associated to a projective scheme, given its defining homogeneous ideal.
22. *Interpolation of characteristic classes of singular hypersurfaces*, joint with Jean-Paul Brasselet, *Advances in Math* 180 (2003) 692-704. We show that Chern-Schwartz-MacPherson's classes of a hypersurface 'interpolate' two other notions of characteristic classes, provided that a regularity condition on the singular locus is satisfied. We apply this result to obtain a lift of Chern-Schwartz-MacPherson's classes to intersection homology for the same class of hypersurfaces.
 23. *Inclusion-exclusion and Segre classes*, *Comm. Algebra* 31 (2003) 3619–3630. We propose a variation of the notion of Segre class, by forcing a naive 'inclusion-exclusion' principle to hold. We establish several general properties of the new class, and obtain an expression for the Milnor class of an arbitrary scheme in terms of this class.
 24. *Inclusion-exclusion and Segre classes, II*, *Contemp. Math.* 324 (2003) 51–61. We pursue the exploration of 'inclusion-exclusion' principles in the theory of Segre classes, by proving such a principle holds for another variation on the notion of Segre class. This is used to provide a simple computation of the classes introduced in our previous work, in certain special (but representative) cases.
 25. *Shadows of blow-up algebras*, *Tohoku Math. J. (2)* 56 (2004), 593-619. We introduce a new 'blow-up algebra' interpolating between the Rees and Symmetric algebras of an ideal, and use it to give a new construction of the Chern-Schwartz-MacPherson class of a hypersurface in a nonsingular variety.
 26. *Chern classes of birational varieties*, *International Mathematics Research Notices* 63 (2004), 3367-3377. We prove that the Chern classes of birational varieties 'with the same canonical class' are images of the same class in a resolution of indeterminacies of any birational map between them. This is an analog of a celebrated theorem of Batyrev, asserting the equality of the Betti numbers of varieties satisfying the same condition.
 27. *Lectures on characteristic classes of singular varieties*, in 'Topics in cohomological studies of algebraic varieties', Birkhäuser (2005) 1–32. Notes for a cycle of five lectures given at the Banach Center, Warsaw, in April 2002.
 28. *Modification systems and integration in their Chow groups*, *Selecta Mathematica* 11 (2005) 155-202. We introduce a formal integration on the category of modifications of a given variety. This leads to new invariants, including 'stringy' Chern classes, and is closely related to the theory of Chern-Schwartz-MacPherson classes.
 29. *Classes de Chern pour variétés singulières, revisitées*, *C. R. Math. Acad. Sci. Paris* 342 (2006), no. 6, 405–410. We summarize a new construction of Chern-Schwartz-MacPherson classes, and use it to give very short proofs of (generalizations of) two known results on these classes.
 30. *Limits of Chow groups, and a new construction of Chern-Schwartz-MacPherson classes*. *Pure Appl. Math. Q.*, Robert MacPherson special issue, part II, 2 (2006), 915–942. We introduce a new 'proChow functor', and use it to give a new construction of Chern-Schwartz-MacPherson classes, providing a new proof of a conjecture of Deligne and Grothendieck.
 31. *Celestial integration, stringy invariants, and Chern-Schwartz-MacPherson classes*, in 'Real and Complex Singularities', J.-P. Brasselet, M.A. Soares Ruas Eds., Birkhäuser, 2007, 1–14. We survey the integration we have defined elsewhere on the category of modifications of a variety, and several applications.

In press:

32. *Une nouvelle preuve de la concordance des classes définies par M.-H. Schwartz et par R. MacPherson*, 7 pages, with Jean-Paul Brasselet. To appear in the *Bulletin of the SMF*. We give a very short proof of the identity between different definitions of Chern classes for singular varieties.
33. *Chern classes of Schubert cells and varieties*, 31 pages, with Leonardo Constantin Mihalcea. To appear in the *Journal of Alg. Geometry*. We give explicit formulas for the Chern-Schwartz-MacPherson classes of all Schubert varieties in the Grassmannian of d -planes in a vector space, and conjecture that these classes are effective. We prove this is the case for (very) small values of d .

Submitted/ready for submission:

34. *Limits of PGL-translates of plane curves, I*, with C. Faber, 29 pages. We study the degenerations of plane curves under the action of one-parameter families of linear transformations.
35. *Limits of PGL-translates of plane curves, II*, with C. Faber, 24 pages. We continue the study of degenerations of plane curves, obtaining certain numerical invariants necessary for applications to enumerative geometry.
36. *Chern class identities from tadpole matching in type IIB and F-theory*, 26 pages, with Mboyo Esole. We prove a family of Chern class identities for elliptic fibrations, conjectured on the basis of considerations in string theory.

Book edited:

Quantum cohomology at the Mittag-Leffler Institute, 163 pages, in the series “Appunti della Scuola Normale Superiore di Pisa”. A write-up of talks given in the Fall semester of 1996 by the participants to the year on “Enumerative geometry and its interactions with theoretical physics” at the Mittag-Leffler institute in Stockholm, Sweden.

Selected seminar and colloquium talks:

- Summer Conference on Enumerative Geometry, Sundance 1986 ‘*Characteristic numbers for smooth plane cubics*’
- Summer Conference on Algebraic Geometry, Sundance 1988, ‘*Enumerative geometry of cuspidal cubics (after Miret–Xambó)*’
- AMS meeting, Louisville 1990, special session in Algebraic Geometry; János Kollár, organizer, ‘*Two characteristic numbers for smooth plane curves of any degree*’
- AMS meeting, Fayetteville 1990, special session in Algebraic Geometry; David Morrison and Jonathan Wahl, organizers, ‘*Orbits of the action of $PGL(3)$ on spaces of curves*’
- AMS meeting, Denton 1990, special session in Algebraic Geometry; Peter Stiller, organizer, ‘*A positivity question*’
- Washington University, St. Louis, 1991, colloquium, ‘*Enumerative geometry of plane curves*’
- Florida State University, Tallahassee, 1991, colloquium (David Wright), ‘*Enumerative geometry of plane curves*’
- Syracuse University, 1991, colloquium, ‘*Enumerative geometry of plane curves*’
- Harvard University, 1991, seminar, ‘*Linear orbits of plane curves*’
- AMS meeting, Fargo 1991, special session in Algebraic Geometry; David Jaffe, organizer, ‘*Multiplicities of discriminants*’
- Max-Planck-Institut, Bonn, 1992, Oberseminar Harder-Hirzebruch-Zagier, ‘*Linear orbits of hypersurfaces,*’
- University of Amsterdam, 1992, seminar, ‘*Singular schemes of hypersurfaces*’
- Max-Planck-Institut, Bonn, 1992, seminar, ‘*Singular schemes of hypersurfaces*’
- Math. Sciences Research Institute, Berkeley, 1993, seminar, ‘*Singular schemes of hypersurfaces*’
- Stanford University, 1993, seminar, ‘*Singular schemes of hypersurfaces*’
- UC Riverside, 1993, conference on Hodge theory and singularities, ‘*Singular schemes of hypersurfaces*’
- Math. Sciences Research Institute, Berkeley 1993, seminar, ‘*Linear orbits of hypersurfaces,*’
- Florida State University, 1993, colloquium, ‘*Geometric perspectives on combinatorics*’
- University of South Carolina, 1994, seminar, ‘*Geometric perspectives on combinatorics*’
- AMS meeting, Stillwater 1994, special session in Algebraic Geometry; Bruce Crauder and Zhenbo Qin, organizers, ‘*Graph coloring and Segre classes*’
- University of Chicago, 1994, seminar, ‘*Singular schemes of hypersurfaces*’

- University of Chicago, 1994, seminar, ‘*A blow-up construction and graph coloring*’
- AMS meeting, San Francisco 1995, special session in Extremal Riemann Surfaces; Jack Quine and Peter Sarnak, organizers, ‘*Linear orbits of configurations of points in P^1* ’
- AMS meeting, Kent 1995, special session in Toric varieties, intersection theory, and enumerative geometry; C. Ban, L. Ernstrom, G. Kennedy, L. McEwan, organizers, ‘*Characteristic classes of singular hypersurfaces*’
- University of Chicago, 1995, seminar, ‘*Chern classes of singular hypersurfaces*’
- Mittag-Leffler Institute, Stockholm, Sweden, 1996, seminar, ‘*Operads and associativity of the quantum product*’
- University of Oslo, 1997, seminar, ‘*Chern classes of singular hypersurfaces*’
- Mittag-Leffler Institute, Stockholm, Sweden, 1997, seminar, ‘*Euler obstructions and characteristic classes of discriminants*’
- University of Georgia, 1997, seminar, ‘*Chern classes of singular hypersurfaces*’
- University of Georgia, 1997, colloquium, ‘*Linear orbits of hypersurfaces,*’
- University of Florida, 1997, seminar, ‘*Characteristic classes of singular hypersurfaces*’
- Massachusetts Institute of Technology, 1998, seminar, ‘*Characteristic classes of discriminants and enumerative geometry*’
- University of Pennsylvania, 1998, seminar, ‘*Characteristic classes of discriminants and enumerative geometry*’
- Harvard University, 1998, seminar, ‘*Small linear orbits of plane curves*’
- Scuola Normale Superiore di Pisa, Italy, 1998, (Workshop on Hodge theory, Mirror symmetry, and Quantum cohomology) ‘*Invariants of singularities and characteristic classes of hypersurfaces*’
- University of Rome, Italy, 1998, seminar, ‘*Invariants of singularities and characteristic classes of hypersurfaces*’
- Hokkaido University, Sapporo, Japan, 1998 (Symposium on Singularities) ‘*Invariants of singularities and characteristic classes of hypersurfaces*’
- AMS meeting, San Antonio 1999, special session in Singularities in Analytic and Algebraic Geometry; C. Grant Melles, R. Michler, organizers, ‘*Weighted Chern-Mather classes and Milnor classes*’
- Centre International de Rencontres Mathématiques, Luminy, France, 1999 (Groupe de travail “Classes de Milnor”) ‘*Weighted Chern-Mather classes*’
- Boston University, 1999, seminar, ‘*Characteristic classes of singular varieties*’
- AMS meeting, Charlotte 1999, special session in Algebraic Geometry; V. Alexeev, W. Graham, R. C. Smith, R. Varley, organizers, ‘*Differential forms with logarithmic poles and Chern classes of singular varieties*’
- Royal Institute of Technology, Stockholm, Sweden, 1999, seminar, ‘*Linear orbits of plane curves*’
- University of Bologna, Italy, 1999 (Second international conference in Intersection Theory), ‘*Linear orbits of plane curves*’
- AMS meeting, Washington 2000, special session in Singularities in Analytic and Algebraic Geometry; C. Grant Melles, R. Michler, organizers, ‘*Singularities and linear orbits of plane curves*’
- Max-Planck-Institut, Bonn, Germany, 2000, Oberseminar, ‘*Chern classes of singular hypersurfaces*’
- Georgia Tech, Atlanta, 2000, seminar, ‘*Singularities of hypersurfaces.*’
- Georgia Tech, Atlanta, 2000, seminar, ‘*Chern classes of singular hypersurfaces*’
- Institut Fourier, Grenoble, France, 2001, seminar, ‘*Interpolating characteristic classes of hypersurfaces*’
- Institut de Mathématiques de Luminy, France, 2001 lecture cycle, ‘*Interpolating characteristic classes of hypersurfaces*’

- Centre de Mathématiques, Technopôle Château-Gombert, Marseille, France, 2001, seminar, ‘*Interpolating characteristic classes of hypersurfaces*’
- Centre International de Rencontres Mathématiques, Luminy, France, 2001 (Résolution des singularités et géométrie non commutative, à la mémoire de Ruth Michler) ‘*Interpolating characteristic classes of hypersurfaces*’
- Max-Planck-Institut, Bonn, Germany, 2002, Seminar on Algebra, Geometry, and Physics (Y. Manin) ‘*Shadows of blow-up algebras*’
- Banach Center, Warsaw, Poland, April 2002, Mini-course on ‘*Characteristic classes of singular varieties*’, (five lectures; organized by P. Pragacz)
- Royal Institute of Technology, Stockholm, Sweden, 2002, seminar (C. Faber), ‘*Computing characteristic classes of projective schemes*’
- Institut Fourier, Grenoble, France, 2002, seminar (G. Gonzalez-Sprinberg), ‘*Characteristic cycles, Segre classes, and the inclusion-exclusion principle*’
- Universtät Bayreuth, Germany, 2002, seminar (F. Catanese), ‘*Computing characteristic classes of projective schemes*’
- AMS meeting, Boston 2002, special session in Singularities in Algebraic and Analytic Geometry; T. Gaffney, D. Massey, C. Grant Melles, organizers, ‘*Variation on a theme of John Nash*’
- AMS meeting, Baltimore 2003, special session in Computational Algebraic and Analytic Geometry for Low-Dimensional Varieties; Mika Seppälä and Emil Volcheck, organizers, ‘*Computing characteristic classes of projective schemes*’
- University of California, Irvine, 2003, Algebraic Geometry seminar (T. Shaska), ‘*Linear orbits of plane curves*’
- Math. Sciences Research Institute, Berkeley 2003 (workshop on Computational Commutative Algebra) ‘*Shadows of blowup algebras*’
- University of Utrecht, 2003, Basic Notions seminar (G. Cornelissen), ‘*Intersection theory*’
- University of Utrecht, 2003, Geometry seminar (B. Szendroi), ‘*Shadows of blowup algebras*’
- Max-Planck-Institut, Bonn, Germany, 2003, Algebraic Geometry seminar (S. Lu), ‘*Linear orbits of plane curves*’
- University of Michigan, Ann Arbor, MI, 2004, Algebraic Geometry seminar (R. Lazarsfeld), ‘*Chern classes of birational varieties*’
- Politecnico di Torino, Torino, Italy, 2004 (Enumerative Geometry, old and new) ‘*Chern classes of birational varieties*’
- Max-Planck-Institut, Bonn, Germany, 2004, Algebraic Geometry seminar (M. Toma), ‘*Chow integration*’
- Centre International de Rencontres Mathématiques, Luminy, France, 2004 (VIII^{me} Rencontre Internationale de Sao Carlos sur les singularités réelles et complexes au CIRM; plenary speaker) ‘*Celestial integration, Chern-Schwartz-MacPherson classes, and stringy invariants*’
- Centre International de Rencontres Mathématiques, Luminy, France, 2005 (Ecole thématique CNRS—Conférence générale de singularités) ‘*Celestial integration*’
- MPI für Mathematik and Universität Bonn, Germany, 2005 (XXXVII Arbeitstagung) ‘*Stringy Chern classes*’
- Max-Planck-Institut, Bonn, Germany, 2005, Seminar on Algebra, Geometry, and Physics (Y. Manin), ‘*Celestial integration, pro-Chow groups, and characteristic classes of singular varieties*’
- Ohio State University, Columbus, OH, 2006, Lefschetz Colloquium (G. Kennedy), ‘*Invariants of singular varieties, old and new*’
- Centre de Mathématiques, Technopôle Château-Gombert, Marseille, France, 2006, seminar, ‘*Groupes de proChow et classes de Chern-Schwartz-MacPherson*’

- Renyi Institut, Budapest, Hungary, May 2006, summer school on *Characteristic classes of singular varieties*, (four lectures; organized by A. Nemethi)
- Galatasaray University, Istanbul, Turkey, 2006 (Arithmetic and geometry around quantization) *Invariants of singular varieties, old and new*, (two lectures)
- Universität Freiburg, Germany, 2006, Seminar on mirror symmetry (B. Siebert) *Chern classes of singular varieties*
- Centre de Mathématiques, Technopôle Château-Gombert, Marseille, France, 2007, seminar, *Variétés de Schubert et leurs classes de Chern*
- Mittag-Leffler Institute, Stockholm, Sweden, 2007, seminar (C. Faber, T. Ekedahl) *Limits and Chern classes*.