

# Dragos Oprea

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## Contact Information:

Department of Mathematics  
Stanford University  
450 Serra Mall, Room 382 D  
Stanford, CA, 94305, USA.

Cell Phone: (617) 877-8059  
Work Phone: (650) 723-2974  
Email: [oprea@math.stanford.edu](mailto:oprea@math.stanford.edu)  
Web: <http://math.stanford.edu/~oprea>

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- PERSONAL      Romanian citizen. US permanent resident.
- RESEARCH      Algebraic and complex geometry, mathematical physics. My research focuses on moduli theory, in particular, the moduli spaces of stable morphisms and stable sheaves, Gromov-Witten and Donaldson-type invariants.
- EMPLOYMENT    *Stanford University, Department of Mathematics, Stanford, CA.*
- Szegő Assistant Professor, 2006 - present.
  - Samuelson Fellow/Acting Assistant Professor, 2005 - 2006.
- EDUCATION      *Massachusetts Institute of Technology, Cambridge, MA.*
- Ph.D. in Mathematics, June 2005. Thesis advisor: Gang Tian.
  - Thesis title: The tautological classes of the moduli spaces of stable maps to flag varieties. *Harvard University, Cambridge, MA.*
  - A. B. 2000, Summa Cum Laude in Mathematics.
- PUBLICATIONS    1. *Divisors on the moduli spaces of stable maps to flag varieties and reconstruction*, Journal für die Reine und Angewandte Mathematik 586 (2005), 169-205.
2. *The tautological rings of the moduli spaces of stable maps*, Journal of Algebraic Geometry 15 (2006), 623-655.
3. *Tautological classes on the moduli spaces of stable maps to projective spaces via torus actions*, Advances in Mathematics 207 (2006), 661-690.
4. *On the intersection theory of the moduli spaces of rank two vector bundles*, with Alina Marian, Topology 45 (2006), 531-541.
5. *Virtual intersections on the Quot scheme and Vafa-Intriligator formulas*, with Alina Marian, Duke Mathematical Journal 136 (2007), 81-131.
6. *Counts of maps to the Grassmannian and intersections on the moduli space of stable bundles*, with Alina Marian, Journal of Differential Geometry 76 (2007), 155-175.
7. *The level-rank duality for non-abelian theta functions*, with Alina Marian, Inventiones Mathematicae 168 (2007), 225-247.
8. *A tour of theta dualities on moduli spaces of sheaves*, with Alina Marian, accepted to Contemporary Mathematics, <http://math.stanford.edu/~oprea/publications.html>, [arXiv:0710.2908](https://arxiv.org/abs/0710.2908).

9. *Sheaves on abelian surfaces and Strange Duality*, with Alina Marian, accepted to Math Annalen, available at <http://math.stanford.edu/~oprea/publications.html>, arXiv:0710.0638.
10. *A note on the Verlinde bundles on elliptic curves*, submitted, available at <http://math.stanford.edu/~oprea/publications.html>, arXiv:0710.0638.
11. *Tautological relations on Kontsevich spaces*, in preparation, preliminary version available at <http://math.stanford.edu/~oprea/publications.html>.
12. *Numerical invariants of the moduli space of relative ideals*, in preparation.

TEACHING  
EXPERIENCE

1. Stanford University, Spring 2008, *Math 145* - Undergraduate Algebraic Geometry, Instructor.
2. Stanford University, Spring 2008, *Math 244* - Riemann Surfaces and Algebraic Curves, Instructor.
3. Stanford University, Fall 2007, *Math 52* - Integral Calculus of Several Variables, Instructor.
4. Stanford University, Fall 2007, *Math 360* - Supervised Reading and Research, Commutative Algebra.
5. Stanford University, Winter 2007, *Math 51* - Linear Algebra and Multivariable Calculus, Instructor.
6. Stanford University, Fall 2006, *Math 245a* - Topics in Moduli Theory, Instructor.
7. Stanford University, Fall 2006, *Math 106* - Complex Variables, Instructor.
8. Stanford University, Fall 2005, *Math 51* - Linear Algebra and Multivariable Calculus, Instructor.
9. M.I.T., Office of Minority Education, Summer 2004, Summer 2005, *Project Interphase*, *Math E, F* - Multivariable Calculus, Head Instructor.
10. M.I.T., January 2004, *18.02* - Multivariable Calculus, Teaching Assistant.
11. M.I.T., Office of Minority Education, Summer 2003, *Project Interphase*, *Math A, B* - Calculus, Instructor.
12. M.I.T., Spring 2003, Spring 2004, *18.03* - Differential Equations, Teaching Assistant.
13. M.I.T., Fall 2001, Spring 2002, *18.965, 18.966* - Differential Geometry, Course Assistant.
14. M.I.T., Summer 2002, Mentor in the *Summer Program in Undergraduate Research*. Undergraduate research projects supervised:
  - (i) Jason Chiu, *On the area of two-dimensional lattice polytopes*.
  - (ii) Pavlo Pylyavskyy, *The Euler characteristics of some Betti moduli spaces*.
15. M.I.T., Summer 2001, Mentor in the *Research Science Institute (RSI)*. Research project supervised:
  - (i) Peter Kevei, *Arithmetic properties of Bell and Stirling numbers*.
16. Boston University, Summer 1998, Summer 1999, Mentor in the *PROMYS* Program.
17. Harvard University, 1997-2000, *Math 55ab* - Honors Advanced Calculus and Linear algebra, *Math 112* - Real Analysis, *Math 115* - Differential Equations and Complex Analysis, *Math 124* - Number Theory, *Math 129* - Advanced Number Theory; Course Assistant.

AWARDS AND  
FELLOWSHIPS

- NSF Grant for the project *Moduli Spaces of Morphisms and Sheaves*, DMS-0701114.
- *Housman Award* for Excellence in Teaching, May 2005.
- *Harvard College Research Program Grant*, Summer 1998, 1999.
- *Putnam Mathematical Competition*, Putnam Fellow 1996; ranked top 25, 1997, 1998.
- *Cue Certificate* for Distinction in Teaching, Harvard University, 1997.
- *International Mathematical Olympiad* - 4 medals, *Balkan Mathematical Olympiad* - 2 medals.

SERVICES

- Editorial Board of *International Mathematics Research Letters*.
- Refereed 10 papers for journals such as *Sigma*, *Communications in Analysis and Geometry*, *Journal of Algebraic Geometry*, *International Mathematics Research Letters*, *Advances in Mathematics*, *Journal of the London Mathematical Society*, *Annals of Mathematics*.
- Reviewer, *Math Reviews* and *Zentralblatt Math*.
- Co-organized the *Stanford Algebraic Geometry Seminar* and *Berkeley-Stanford Algebraic Geometry Colloquium*.
- Stanford University, Departmental Committees: Doctoral Committee of Jarod Alper, Robert Easton, Huai-Lian Chang, Baosen Wu, A. Arvanitaki (Physics); Qualifying Committee of Nicola Penev, Huai-Lian Chang, Jack Hall, Baosen Wu, Yu-jong Tzeng, Ziyu Zhang.
- Stanford University, Undergraduate Advising.

INVITED  
TALKS

- *Conference on vector bundles in honor of S. Ramanan*, Madrid, June 2008.
- *Department Colloquium*, University of California, Santa Cruz, April 2008.
- *Algebraic Geometry Seminar*, University of California, Davis, March 2008.
- *Algebraic Geometry Seminar*, Caltech, March 2008.
- *Complex Geometry Seminar*, Johns Hopkins University, February 2008.
- *Algebraic Geometry Seminar*, Princeton University, February 2008.
- *Department Colloquium*, Duke University, January 2008.
- *Department Colloquium*, Rutgers University, January 2008.
- *Department Colloquium*, University of Pittsburgh, January 2008.
- *Department Colloquium*, University of Wisconsin, Madison, January 2008.
- *Department Colloquium*, University of California, San Diego, January 2008.
- *Department Colloquium*, University of Illinois, Urbana-Champaign, January 2008.
- *Department Colloquium*, University of California, Santa Cruz, January 2008.
- *Department Colloquium*, University of Southern California, December 2007.
- *Department Colloquium*, Rice University, December 2007.
- *Department Colloquium*, University of California, Irvine, November 2007.
- *Western Algebraic Geometry Seminar*, University of Washington, April 2007.

- *A.M.S. Sectional Meeting*, University of Arizona, April 2007.
- *Department Colloquium*, University of California, Davis, April 2007.
- *Algebraic Geometry Seminar*, University of Illinois, November 2006.
- *Algebraic Geometry Seminar*, University of Chicago, November 2006.
- *Workshop on Moduli Spaces and Arcs*, Cologne University, August 2006.
- *Symplectic Geometry Seminar*, Stanford University, June 2006.
- *Algebraic Geometry Seminar*, Stanford University, March 2006.
- *Algebraic Geometry Seminar*, University of California, Berkeley, February 2006.
- *Algebraic Geometry Seminar*, Rice University, October 2005.
- *Algebraic Geometry Seminar*, Stanford University, October 2005.
- *Summer Research Institute in Algebraic Geometry*, Seattle, July 2005.
- *Algebraic Geometry Seminar*, Boston University, May 2005.
- *Algebraic Geometry Seminar*, Yale University, April 2005.
- *Algebraic Geometry Seminar*, University of Pennsylvania, March 2005.
- *Complex Geometry Seminar*, Johns Hopkins University, October 2004.
- *Geometry Seminar*, Harvard University, May 2004.