

İZZET COŞKUN

- CONTACT INFORMATION Department of Mathematics
Massachusetts Institute of Technology
77 Massachusetts Ave 2-167
Cambridge, MA 02139
Phone: (617) 253-4397
Cell: (617) 275-6728
E-mail: coskun@math.mit.edu
Web page: <http://www-math.mit.edu/~coskun>
- PERSONAL Born May 24, 1978 in Istanbul, Turkey. Turkish citizen.
- RESEARCH I am an algebraic geometer with broad interests, including combinatorics, complex dynamics, several complex variables and number theory. My research focuses on topological and numerical invariants of moduli spaces of curves and surfaces, rationally connected varieties, the cohomology of homogeneous varieties and Gromov-Witten theory.
- EDUCATION **Harvard University**, Department of Mathematics
MA 2001, Ph.D. 2004.
Princeton University, Department of Mathematics
A.B. 2000
- APPOINTMENTS **C. L. E. Moore Instructor**, Massachusetts Institute of Technology
2004 – present
Liftoff Fellow, Clay Mathematics Institute
Summer 2004
- PUBLICATIONS
1. I. Coskun, *Degenerations of scrolls and Del Pezzo surfaces and applications to enumerative geometry*. Harvard University Ph.D. Thesis, 2004—under the supervision of Professor Joe Harris.
 2. I. Coskun, *Degenerations of surface scrolls and the Gromov-Witten invariants of Grassmannians*, J. Algebraic Geom. 15 (2006), p. 223-284.
 3. I. Coskun, *Enumerative geometry of Del Pezzo surfaces via degenerations*, Amer. J. Math., vol. 128 no. 3 (2006), p. 751-786
 4. I. Coskun (with C. Cadman, K. Jabbusch, M. Joyce, S. Kovács, M. Lieblich, F. Sato, M. Szczesny, J. Zhang), *A first glimpse at the minimal model program*, Snowbird lectures in algebraic geometry. Contemp. Math., vol 388 (2005) p. 17-42.
 5. I. Coskun, *The arithmetic and the geometry of Kobayashi hyperbolicity*, Snowbird lectures in algebraic geometry. Contemp. Math., vol 388 (2005) p. 77-88.
 6. I. Coskun, *The Gromov-Witten invariants of jumping curves*, to appear in Trans. Amer. Math. Soc.
 7. I. Coskun, *A Littlewood-Richardson rule for two-step flag varieties*, submitted.
 8. I. Coskun, J. Harris and J. Starr, *The ample cone of the Kontsevich moduli space*, to appear in Canad. J. Math.
 9. I. Coskun, J. Harris and J. Starr, *The effective cone of the Kontsevich moduli space*, submitted.
 10. I. Coskun and J. Starr, *Divisors on the space of maps to Grassmannians*, Int. Math. Res. Not., vol. 2006, Article ID 35273, 25 pages, 2006.

11. I. Coskun and R. Vakil, *Geometric positivity and the cohomology of homogeneous spaces and generalized Schubert calculus*, preprint.
12. I. Coskun, *Littlewood-Richardson rules for orthogonal Grassmannians*, in preparation.
13. I. Coskun, *Intersection theory on moduli spaces*, course notes published on OpenCourseWare.

HONORS AND
AWARDS

- Jean de Valpin Fellowship, 2004 Harvard University.
- Raphael Salem Fellowship, 2001 Harvard University.
- 2000 Phi Beta Kappa Prize, for highest academic standing in the Class of 2000 at Princeton University.
- 2000 Middleton Miller'29 Prize, for the best senior thesis in mathematics, Princeton University.
- 2000 George B. Covington Prize, highest achievement in the mathematics major, Princeton University.
- 1999 Andrew H. Brown Prize, the highest achieving junior in the Mathematics Department, Princeton University.
- Class of 1939 Princeton Scholar Award, for highest standing at the end of the junior year at Princeton University, shared with Benjamin Sommers.

TEACHING
EXPERIENCE:

I am a recipient of a Certificate of Distinction in Teaching (Fall 2003) awarded by Harvard's Derek Bok Center. I have taught the following courses and attended the following teacher training programs:

- 18.727, Fall 2006: Topics in Algebraic Geometry, an advanced graduate class on positivity in algebraic geometry at M.I.T.
- 18.727, Spring 2006: Topics in Algebraic Geometry, an advanced graduate class on intersection theory on moduli spaces at M.I.T.
- 18.100B, Fall 2005: Instructor for Analysis I at M.I.T.
- 18.01, Fall 2005: Calculus recitation instructor for two sections.
- 18.03, Spring 2005: Introduction to ordinary differential equations, recitation instructor for three sections.
- 18.781, Fall 2004: Instructor for introduction to number theory at M.I.T.
- Math 21 b, Fall 2003: Teaching fellow for introductory linear algebra at Harvard University.
- Math 25 a and b, 2002-2003: Teaching fellow for introduction to analysis and linear algebra intended for mathematics majors at Harvard University.
- Math 260 a and b, 2001-2002: The course assistant for a year long graduate class Introduction to Algebraic Geometry.
- Tutorial on Special Functions: Applications to Number Theory and Geometry, Summer 2001. Advanced topics tutorial for sophomores and juniors at Harvard University.
- Math Xb, Spring 2001: Teaching fellow for second semester introductory calculus at Harvard University.
- Tutor of the college in mathematics and physics at Princeton University, 1997-2000.
- M.I.T. teacher training seminar Fall 2004.
- Harvard Derek Bok Teacher Training Program Fall 2000.
- Attended semi-annual Derek Bok Center teaching seminars 2000-2004.

GRADUATE
STUDENTS:

Rebecca Lehman (co-advising with Jason Starr, expected to graduate 2007), Craig Desjardin, Brian Lehmann (second year students).

SERVICE

- Co-organizer of the Harvard-MIT Algebraic Geometry Seminar. Fall 2005-present
- Organizer of BAGS, a Boston area graduate student algebraic geometry seminar. Fall 2005-present
- Designed web page, with complete course notes, for OpenCourseWare on intersection theory on moduli spaces
- Referee for journals including Transactions of AMS, IMRN, Experimental Mathematics, and Annals of Mathematics.

INVITED TALKS

1. Harvard University, Abelian differentials and dynamics, Dec. 2002
2. M.I.T., Characteristic numbers of surfaces, Feb. 2003
3. Bogazici University, Characteristic numbers of surfaces, Mar. 2003
4. Rice University, Characteristic numbers of scrolls, Sep. 2003
5. Rice University, Characteristic numbers of Del Pezzo surfaces, Sep. 2003
6. University of Michigan, Characteristic numbers of surfaces, Dec. 2003
7. Northwestern University, Characteristic numbers of surfaces, Jan. 2004
8. Brandeis University, Characteristic numbers of surfaces, Feb. 2004
9. Harvard University, The NEF cone of the moduli space of curves and the F-conjecture, May 2004
10. Oberwolfach Mathematics Institute, The geometry of Grassmannians and flag varieties, June 2004
11. Snowbird Conference, The geometry and arithmetic of Kobayashi hyperbolicity, June 2004
12. Rice University, The geometry of Grassmannians and flag varieties, Colloquium, Sep. 2004
13. AMS Special Session on Schubert Calculus, The geometry of Grassmannians and flag varieties, Oct. 2004
14. Brown University, Characteristic numbers of surfaces, Fall 2004
15. Harvard University, The geometry of Grassmannians and flag varieties, Nov. 2004
16. Ohio State University, The geometry of Grassmannians and flag varieties, Nov. 2004
17. Boston University, The geometry of Grassmannians and flag varieties, Nov. 2004
18. Columbia University, Characteristic numbers of surfaces, Jan. 2005
19. Princeton University, The geometry of Grassmannians and flag varieties, Feb. 2005
20. University of Chicago, The geometry of Grassmannians and flag varieties, Feb. 2005
21. Harvard University, Coble sextics and holomorphic actions of lattices on \mathbb{P}^1 , May 2005
22. Stanford University, Counting jumping curves of vector bundles, May 2005.
23. Harvard University, The ample and effective cones of Kontsevich moduli spaces, Sep. 2005
24. Johns Hopkins University, The ample and effective cones of Kontsevich moduli spaces, Oct. 2005
25. Banff Research Center, The ample and effective cones of Kontsevich moduli spaces, Oct. 2005
26. Texas A&M University, The ample and effective cones of Kontsevich moduli spaces, Oct. 2005
27. Northeastern University, The geometry of Grassmannians and flag varieties, Nov. 2005
28. University of Michigan-Ohio State University joint workshop, The ample and effective cones of Kontsevich moduli spaces, Dec. 2005
29. TMS/AMS Joint Conference, The ample and effective cones of Kontsevich moduli spaces, Dec. 2005

30. Stanford University, Rational curves on hypersurfaces, Jan. 2006
31. Stanford University, Density of sections for pencils of Calabi-Yau hypersurfaces, Jan. 2006
32. Stanford University, The ample and effective cones of Kontsevich moduli spaces, Jan. 2006
33. UC Berkeley, The ample and effective cones of Kontsevich moduli spaces, Jan. 2006
34. University of Minnesota, The geometry of flag varieties, April 2006
35. University of Illinois at Urbana-Champaign, The ample and effective cones of Kontsevich moduli spaces, May 2006
36. University of Illinois at Chicago, The ample and effective cones of Kontsevich moduli spaces, Oct. 2006

REFERENCES

- Joe Harris, Harvard University (thesis advisor)
- William Fulton, University of Michigan
- Ravi Vakil, Stanford University
- Jason Starr, M.I.T. and SUNY Stony Brook
- Arthur Mattuck, M.I.T. (teaching)