

# Thomas Nevins

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## EDUCATION

**University of Chicago**, Ph.D., Mathematics, June, 2000.

**University of Notre Dame**, B.A. with highest honors, Mathematics and Philosophy, May, 1993.

## POSITIONS HELD

**University of Illinois at Urbana-Champaign**, Associate Professor, Department of Mathematics, 2009–present.

**University of Illinois at Urbana-Champaign**, Assistant Professor, Department of Mathematics, 2004–2009.

**University of Michigan**, Assistant Professor, Department of Mathematics, 2000–2004.

**Mathematical Sciences Research Institute**, Postdoctoral Fellow, Spring 2002.

## HONORS AND AWARDS

**Helen Corley Petit Scholar**, College of Liberal Arts and Sciences, University of Illinois at Urbana-Champaign, 2009–2010.

**NAS-Cinvestav Lecturer**, Cinvestav, Mexico City, December, 2008.

**Beckman Fellow**, Center for Advanced Study, UIUC, 2007–2008.

**Plenary Speaker**, *Workshop on “D-Bundles and Integrable Hierarchies,”* University of Michigan, May, 2007.

**Dean’s Teaching Fellowship**, College of Liberal Arts and Sciences, University of Illinois at Urbana-Champaign, 2006–2007.

**NSF Postdoctoral Research Fellowship**, University of Michigan, 2001–2004.

**Summer Research Fellowship**, Rackham Graduate School (University of Michigan), Summer 2001.

**Distinguished Seminar Grant** (jointly with Gilberto Bini and William Fulton) for Moduli Spaces Seminar, Rackham Graduate School, 2001–2002.

**NDSEG Graduate Fellow** (Department of Defense), University of Chicago, 1993–1997.

**Graduate Teaching Award Nominee**, University of Chicago Physical Sciences Division, 1995–1996 and 1998–1999.

## RESEARCH GRANTS

**NSF Research Grant** DMS-0757987, 2008–2011, \$120,000.

**NSF Research Grant** DMS-0500221, 2005–2009, \$110,712.

**Campus Research Board Grant**, University of Illinois, 2005, \$24,226.

## PUBLICATIONS

- [1] “Degrees of convex dependence in recursively enumerable vector spaces,” *Ann. Pure Appl. Logic* **60** (1993), no. 1, 31–47.
- [2] “Representability for some moduli stacks of framed sheaves,” *Manuscripta Math.* **109** (2002), 85–91.
- [3] “Moduli spaces of framed sheaves on certain ruled surfaces over elliptic curves,” *Internat. J. Math.* **13** (2002), no. 10, 1117–1151.
- [4] “Cusps and  $\mathcal{D}$ -modules,” with D. Ben-Zvi, *J. Amer. Math. Soc.* **17** (2004), 155–179.
- [5] “Geometry of Calogero-Moser systems,” with J. Hurtubise, *Ann. Inst. Fourier* **55** (2005), no. 6, 2091–2116.
- [6] “Stringy Chern classes of singular varieties,” with T. de Fernex, E. Lupercio, and B. Uribe, *Advances in Math.* **208** (2007), no. 2, 597–621.
- [7] “A localization principle for orbifold theories,” with T. de Fernex, E. Lupercio, and B. Uribe, in “Recent Developments in Algebraic Topology,” A. Ádem et al., eds., *AMS Contemp. Math.* **407** (2006), 113–133.
- [8] “Sklyanin algebras and Hilbert schemes of points,” with J.T. Stafford, *Adv. in Math.* **210** (2007), no. 2, 405–478.
- [9] “From solitons to many-body systems,” with D. Ben-Zvi, *Pure Appl. Math. Q.* **4** (2008), no. 2 (F. Bogomolov special issue), 319–361.
- [10] “Flows of Calogero-Moser systems,” with D. Ben-Zvi, *Int. Math. Res. Not.* **2007** (2007), article ID rnm105, 38 pages, doi:10.1093/imrn/rnm105.
- [11] “Perverse bundles and Calogero-Moser spaces,” with D. Ben-Zvi, *Compositio Math.* **144** (2008), no. 6, 1403–1428.
- [12] “Descent of coherent sheaves and complexes to geometric invariant theory quotients,” *J. Algebra* **320** (2008), no. 6, 2481–2495.
- [13] “Mirabolic Langlands duality and the quantum Calogero-Moser system,” *Transformation Groups* **14** (2009), no. 4, 931–983.
- [14] “W-symmetry of the adèlic Grassmannian,” with D. Ben-Zvi, *Commun. Math. Phys.* **293** (2010), no. 1, 185–204.
- [15] “ $\mathcal{D}$ -bundles and integrable hierarchies,” with D. Ben-Zvi, *J. Eur. Math. Soc.*, accepted for publication.
- [16] “Moduli spaces for point modules on naive blow-ups,” with S. Sierra, *Algebra & Number Theory*, accepted for publication.

## INVITED LECTURES

### **2011:**

Kavli Royal Society Centre and University of Oxford, *Workshop on Symplectic Resolutions, Quantum Cohomology, and Symplectic Reflection Algebras*, July.

Isle of Skye, *New Developments in Noncommutative Algebra and Its Applications*, June/July.

Notre Dame, *Mathematical Aspects of Quantization Conference*, June.

University of Pennsylvania, *Math/Physics Seminar*, April.

Northwestern University, *Geometry and Physics Seminar*, April.

Purdue University, *Algebraic Geometry Seminar*, February.

### **2010:**

University of Illinois at Chicago, *Algebraic Geometry Seminar*, November.

Oberwolfach, *Interactions between Algebraic Geometry and Noncommutative Algebra*, May.

### **2009:**

University of Maryland, *Algebra and Number Theory Seminar*, December.

Chicago, *Algebraic Geometry: a Conference in Honor of Anatoly Libgober's 60th Birthday*, October.

University of Notre Dame, *Colloquium*, October.

### **2008:**

Cinvestav, Mexico City, *2008 NAS-Cinvestav Lectures*, December.

University of Manchester, *Geometry Seminar*, May.

University of Edinburgh, *Algebra Seminar*, May.

University of Oxford, *Algebraic and Symplectic Geometry Seminar*, May.

Imperial College, London, *London Topology and Geometry Seminar*, May.

AMS Special Session on  *$\mathcal{D}$ -Modules*, Indiana University, April.

### **2007:**

CRM Montréal, *Workshop on Nonlinear Integral Transforms*, August.

University of Michigan, *Workshop on  $F$ -Singularities and  $\mathcal{D}$ -Modules*, August.

Northwestern University, *Trends in Noncommutative Geometry*, May.

Ohio State University, *Algebraic Geometry Seminar*, May.

University of Michigan, *Workshop on " $\mathcal{D}$ -Bundles and Integrable Hierarchies,"*, May.

University of Wisconsin-Madison, *Algebraic Geometry Seminar*, April.

University of Texas-Austin, *Geometry Seminar*, March.

### **2006:**

AMS Special Session on *Birational Geometry*, University of Cincinnati, October.

Boston University, *Geometry Seminar*, October.

Ohio State University, *Algebraic Geometry Seminar*, May.

### **2005:**

Western Algebraic Geometry Seminar, Salt Lake City, December.

Cornell University, *Oliver Club (Colloquium) and Lie Groups Seminar*, November.

Northwestern University, *Geometry/Physics Seminar*, November.

Northern Illinois University, *Colloquium*, November.

AMS Special Session on Noncommutative Algebra and Geometry, Santa Barbara, April.

**2004:**

Columbia University, *Algebraic Geometry Seminar*, April.  
Princeton University, *Geometry, Representation Theory, and Moduli Seminar*, March.  
University of Oregon, *Colloquium*, February.  
Michigan State University, *Colloquium*, January.  
University of Kansas, *Colloquium and Algebra Seminar*, January.  
University of Illinois at Urbana-Champaign, *Colloquium*, January.  
University of Notre Dame, *Colloquium and Algebra Seminar*, January.  
University of Utah, *Colloquium and Algebraic Geometry Seminar*, January.  
Ohio State University, *Algebraic Geometry Seminar*, January.

**2003:**

SUNY Buffalo, *Colloquium*, December.  
Kansas State University, *Colloquium*, December.  
University of Massachusetts–Amherst, *Colloquium*, December.  
Johns Hopkins University, *Algebraic and Complex Geometry Seminar*, December.  
Ohio State University/Univ. of Michigan Algebraic Geometry Workshop, November.  
Cornell University, *Oliver Club (Colloquium)* and *Lie Groups Seminar*, November.  
CRM, Montréal, *Mathematical Physics Seminar*, November.  
University of Illinois at Urbana-Champaign, *Algebraic Geometry Seminar*, September.  
Michigan State University, *Symplectic Geometry Seminar*, April.  
AMS Session on Algebraic Geometry and Integrable Systems, NYU, April.

**2002:**

Rice University, *Algebraic Geometry Seminar*, November.  
University of Pennsylvania, *Algebra Seminar*, September.  
MSRI, *Workshop on Non-Abelian Hodge Theory*, April.  
UC Berkeley/Stanford University, *Joint “Compactifications” Seminar*, March.

**2000–2001:**

University of Wisconsin–Madison, *Topology/Geometry Seminar*, February 2001.  
University of Illinois at Urbana–Champaign, *Differential Geometry Seminar*, October 2000.  
University of Notre Dame, *PDE, Complex Analysis, and Differential Geometry Seminar*, May 2000.  
University of Pennsylvania, *Math/Physics Seminar*, April 2000.  
University of Michigan, *Algebraic Geometry Seminar*, January 2000.

## TEACHING EXPERIENCE

**University of Illinois at Urbana-Champaign**

Non-Euclidean Geometry (Math 402), Fall 2010. A junior-senior-level course in Euclidean and non-Euclidean geometry.

Algebraic Geometry II (Math 595), Fall 2010. A second course on algebraic varieties and schemes for graduate students.

Algebraic Geometry I (Math 511), Spring 2010. A first course on the geometry of algebraic varieties for graduate students.

Non-Euclidean Geometry (Math 402), Spring 2010. A junior-senior-level course in Euclidean and non-Euclidean geometry.

Linear Algebra with Financial Applications (Math 410), Fall 2009. A course in linear algebra for Actuarial Science majors.

Linear Algebra with Financial Applications (Math 410), Spring 2009.

$\mathcal{D}$ -Modules and Beilinson-Bernstein Localization (Mathematics 595), Spring 2009. A graduate course developing  $\mathcal{D}$ -modules, category  $\mathcal{O}$ , and the BB proof of the Kazhdan-Lusztig conjecture.

Linear Analysis on Manifolds (Mathematics 524), Autumn 2008. A course in complex geometry and Hodge theory.

Calculus III (Mathematics 241), Spring 2008. A large lecture course in multivariable calculus.

Calculus III (Mathematics 241), Spring 2007. A large lecture course in multivariable calculus.

Honors Algebraic Geometry (Mathematics 428), Autumn 2006. A first course in algebraic geometry for undergraduates, focusing on the geometry of algebraic curves. *Named to "Incomplete List."*

Honors Algebra I (Mathematics 427), Spring 2006. An introductory, example-oriented course on groups, rings, and fields for Honors Mathematics undergraduates.

Algebraic Geometry II (Mathematics 595), Autumn 2005. A course on cohomology of varieties with applications to the geometry of curves and surfaces for second-year graduate students.

Algebraic Geometry I (Mathematics 511), Spring 2005. A course in schemes and their cohomology for second-year graduate students.

Fundamental Mathematics (Mathematics 347), Autumn 2004. A first course in reading and writing proofs for undergraduates.

Abstract Algebra I (Mathematics 500), Autumn 2004. A first-semester graduate course in groups, rings, and fields for mathematics graduate students.

### **University of Michigan**

Introduction to Linear Algebra (Mathematics 513), Winter 2003. Taught a course in abstract linear algebra for graduate students in engineering and talented undergraduates.

Honors Calculus I (Mathematics 185), Autumn 2001. Taught a rigorous one-variable calculus course for talented undergraduates.

Multivariable Calculus (Mathematics 215), Winter 2001. Taught a multivariable calculus course (including managing a graduate student assistant).

Calculus I (Mathematics 115), Autumn 2000. Taught a discussion- and group-work based calculus course (three sections).

### **University of Chicago**

Calculus 131-132-133, 1995–1996, 1998–1999, and 1999–2000. Taught an introductory-level calculus course with responsibility for all aspects of the course. *Nominated for Physical Sciences Division graduate teaching prize in 1995–1996 and 1998–1999.*

Calculus 151-152-153, 1997–1998. Taught a rigorous one-variable calculus course with responsibility for all aspects of the course.

College Fellow, Honors Calculus, 1994–1995. Conducted problem sessions; helped write and grade tests; lectured twice per term.

## PROFESSIONAL SERVICE

- Local organizer, Workshop on “Wall-crossing in mathematics and physics,” Urbana, May, 2010.
- Organizer, AMS Special Session on “Topological field theories, representation theory, and algebraic geometry,” AMS Sectional Meeting, Urbana-Champaign, March 2009.
- Organizer, Algebraic Geometry Seminar, University of Illinois at Urbana-Champaign, 2004–2005 and 2008–2009.
- Graduate student mentor, VIGRE Teaching Apprenticeship Program, University of Michigan, Winter 2003.
- Organizer (with G. Bini, G. Farkas, and A. Gibney) of *Conference on Curves and Their Moduli* (AMS Special Session), Ann Arbor, March 2002.
- Referee/reviewer for *Advances in Mathematics*, AMS *Mathematical Surveys and Monographs* series, Birkhäuser *Progress in Mathematics* series, *Duke Mathematical Journal*, *Journal of Algebra*, *Journal of Algebraic Geometry*, *Journal of the American Mathematical Society*, *Journal of Pure and Applied Algebra*, *Mathematical Research Letters*, *Quarterly Journal of Mathematics*, *Topology*.
- Reviewer for Math Reviews.
- Reviewer for National Security Agency.

## DEPARTMENTAL AND UNIVERSITY SERVICE

- Mathematics Chair Search Committee, 2011.
- Feasibility Study Steering Committee (for renovation of Altgeld and Illini Halls), 2011-2012 (chair).
- College of Liberal Arts and Sciences Awards Committee, 2008–2010.
- Mathematics Department Space Committee (Chair), 2009-2010.
- Algebraic Geometry Area Chair, 2008–2011.
- Capricious Grading Committee, 2008–2010.
- Academic Disciplinary Committee, 2008–2010.
- LAS College Awards Committee, 2008–2009.
- Committee to design new Math 241 curriculum, Spring 2008.
- Algebraic Geometry Area Chair, 2006–2007.
- Honors Committee, 2006–2007.
- Postdoc Hiring Committee, 2004–2006 (chair, 2005–2006).
- Algebra Comprehensive Exam Committee, 2005–2006.
- Graduate Teaching Awards Committee, Spring 2006.
- Department of Mathematics Chair Search Committee, 2006.
- Peer reviewer for Campus Research Board.