

# Curriculum Vitae

Yi Lin

## Personal Information

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## Employment

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Postdoctoral Fellow, University of Toronto, Fall 2005 - Present  
Visiting Assistant Professor, University of Illinois at Urbana-Champaign, Fall 2004 - Spring 2005  
Graduate Teaching Assistant, Cornell University, Fall 1999 - Spring 2004  
Lecturer, Sichuan University, China, Fall 1997 - Spring 1998

## Education

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**Ph.D.**, Cornell University Department of Mathematics *2004*  
Dissertation: *Equivariant symplectic Hodge theory and strong Lefschetz manifolds*  
Advisor: Reyer Sjamaar  
**M.S.**, Sichuan University Department of Mathematics, P. R. China *1997*  
**B.S.**, Sichuan University Department of Mathematics, P. R. China *1994*

## Honors and awards

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Nomination for the Department Teaching Award, Cornell University *Fall 2003*  
Eleanor Norton York Award, Cornell University *2000*  
Graduate School Fellowship, Cornell University *1998-1999*  
Recipient of Graduate student award of Academic Excellence, Sichuan University *1996*  
Graduated summa cum laude, Sichuan University *1994*

## Research interests

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Differential geometry, including symplectic geometry, generalized complex geometry, and their connection to mathematical physics.

## Research papers

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1. *Cohomology of generalized complex quotients I*,  
with Tom Baird, in preparation, to appear on arxiv soon.
2. *Examples of Hamiltonian actions on twisted generalized complex manifolds*,  
Preprint, 11 pages.
3. *Geography of non-Kähler symplectic torus actions*,  
with Alvaro Pelayo, 9 pages, submitted.
4. *The Equivariant cohomology theory of twisted generalized complex manifolds*,  
Preprint, math.DG/0704.2804, 33 pages, accepted by the Comm. in Math. Phy. for publication.
5. *The log-concavity conjecture for the Duistermaat-Heckman measure revisited*,  
Preprint, math.SG/0703297, 18 pages, accepted by International Mathematics Research Notices.
6. *Generalized geometry, Equivariant  $\bar{\partial}\partial$ -lemma, and torus actions*,  
the Journal of Geometry and Physics, 57 (2007), 1842-1860.
7. *Symmetry in generalized Kähler geometry*,  
with Susan Tolman, Comm. in. Math. Phy. 268 (2006) no. 1, 199-222.
8.  *$d_G, \delta$ -lemma for equivariant forms with generalized coefficient*,  
19 pages, Submitted
9. *Examples of Non-Kähler Hamiltonian circle manifolds with the strong Lefschetz property*  
Advances in Mathematics, 208 (2007), issue 2, 699 - 709.
10. *Equivariant Symplectic Hodge theory and the  $d_G\delta$ -lemma*  
with Reyer, Sjamaar, J. Symplectic Geom. 2 (2003), no. 2, 267-278

## Peer-review and related activities

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Referee of Inter. Math. Res. Notices, the Pacific J. of Mathematics.

Reviewer of Mathematical Reviews, Fall 2006 - Present.

## Selected invited mathematics talks

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Invited to participate a one month international visiting scholar program and deliver lecture series on my research work on generalized complex geometry at Fudan University, Shanghai, June, 2008.

*Group actions in generalized complex geometry*, February 13, 2008, department colloquium, National University of Singapore, Singapore.

*Morse-Bott theory and moment maps in generalized complex geometry*, January 30, Geometry Seminar, University of Rochester.

*Rational cohomology ring of abelian generalized complex quotients*, February 20, 2007, Mathematical Physics Seminar, Penn State University.

*The equivariant cohomology theory in generalized complex geometry*, August 9, 2007, Geometry Seminar, Fudan University, Shanghai, China.

*The Duistermaat-Heckman theorem in generalized complex geometry*, July 28, 2007, Geometry Seminar, Sichuan University, China.

*Hamiltonian action on generalized complex manifolds - an introduction*, June 18, 2007, College on Mirror Symmetry, Chern Institute of Mathematics, Nankai University, Tianjing, China.

*An invitation to generalized geometry*, April 18, 2007, Geometry and Topology seminar, McMaster University, Hamilton, Ontario, Canada.

*The log concavity conjecture revisited*, April 6, 2007, Lie Group Seminar, Cornell University, Ithaca, NY.

*Hamiltonian actions on generalized complex manifolds and equivariant  $\bar{\partial}\partial$ -lemma*, December 2006, Poisson Geometry and Mathematical Physics, CMS 2006 Winter Meeting, Toronto, Canada.

*Generalized Kähler quotient, bi-Hermitian structures, and equivariant  $\bar{\partial}\partial$ -lemma*, November 2006, Symplectic Topology Seminar, CIRGET, University of Montreal, Canada.

*Hamiltonian symmetries in generalized complex geometry*, November 2006, Geometry & Analysis Seminar, Western Ontario University, Canada.

*Symmetry in generalized Kähler geometry*, September 2005, Symplectic Seminar, University of Toronto, Canada.

*Strong Lefschetz manifolds and equivariant symplectic Hodge theory*, September 2004, Differential Geometry Seminar, University of Illinois at Urbana-Champaign.

*Symplectic Hodge theory and equivariant  $d_G\delta$ -lemma*, February 2004, Symplectic Seminar, University of Toronto.

*Symplectic Hodge theory and equivariant  $d_G\delta$ -lemma*, September 2003, Geometry and Topology Seminar, SUNY at Stony Brook.

My work on generalized complex geometry was also mentioned in:

*New aspects of generalized geometry*, talk by N. Hitchin at Strings 2006, Beijing, June 2006.

Available at <http://strings06.itp.ac.cn/talk-files/hitchin.pdf>, page 49.

*Generalized Complex Structures: An Introduction*, talk by N. Hitchin at KITP Program: Mathematical Structures in String Theory, Santa Barbara, September 2005.

Available at [http://online.itp.ucsb.edu/online/strings05/hitchin/pdf/Hitchin\\_KITP.pdf](http://online.itp.ucsb.edu/online/strings05/hitchin/pdf/Hitchin_KITP.pdf), page 60.

In fact, my collaborator Susan Tolman was invited to the Geometry Conference in Honor of Hitchin, an ICM 2006 satellite conference in Madrid, Spain, to deliver a report on our joint work. Lecture slides are available at <http://www.mat.csic.es/webpages/conf/hitchin2006/slides/tolman.pdf>

## Conferences attended

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Transformation Groups in Topology and Geometry, invited participant, University of Massachusetts-Amherst, July 14 - 17, 2008.

Conference on Mathematical Physics and Geometric Analysis, Fields Institute, Toronto, January 14 - 17, 2008.

AMS Joint Meetings, San Diego, USA, January, 2008.

College on Mirror Symmetry, Chern Institute of Mathematics, Nankai University, Tianjing, China, June, 2007.

AMS Joint Meetings, New Orleans, USA, January, 2007.

CMS winter meeting, Toronto, Canada, December, 2006.

Cornell Topology Festival (with focus on symplectic topology and geometry), Ithaca, New York, USA, May 2005.

ARCC workshop: moment map and surjectivity in various geometries, Palo Alto, California, USA, August 2004.

Geometry and Topology of quotients, University of Arizona, Tuscon, Arizona, December 2002.

Workshop on Hamiltonian group action and quantization, Toronto, Canada, June 2001.

Workshop on aspects of quantization, CRM, Montreal, Canada, September 1999.

## **Other professional activities**

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Organizer of the University of Toronto symplectic seminar, Fall 2006 - Summer 2007.

Organizer of an informal seminar on generalized complex geometry at the University of Toronto, Spring 2006.

Visitor, Particle Theory Group, Caltech, hosted by Prof. Kapustin, May 3 - 10, 2007.

Visiting Student, Department of Mathematics, Massachusetts Institute of Technology, Cambridge, Massachusetts, Spring 2002.

Visiting Student, The Fields Institute for Research in Mathematical Sciences, Toronto, May 2001.

## **TEACHING EXPERIENCE**

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### **Instructor**

1. University of Toronto *Fall 2005- Present*

MAT 134, Calculus for Life Sciences, a year long calculus course to about 70 biology students at the University of Toronto, Mississauga campus, 2007 -2008

MATA 35, Second calculus course to about 180 biology students at the University of Toronto, Scarborough campus, Spring 2007.

MATA 27, Introductory calculus course to about 180 business students at the University of Toronto, Scarborough campus, Spring 2006.

MATC 25, Hyperbolic geometry to about 20 mathematics students at the University of Toronto, Scarborough campus, Fall 2005 and Fall 2006.

2. University of Illinois at Urbana-Champaign

*Fall 2004 - Spring 2005*

Math 385, Undergraduate differential equations course to about 120 engineering students, Fall 2004, Spring 2005.

Math 461, Undergraduate introductory probability course, with some topics from statistics, to about 20 mathematics students, Fall 2004

**Teaching Assistant** (Cornell University)

*Fall 1999 - Spring 2005*

Recitation TA, undergraduate level courses on linear algebra and calculus: taught recitation sections; graded homework and exams; held regular office hours with students.

Grader, graduate level courses on differential manifolds and algebraic topology, undergraduate level courses on abstract algebra and advanced linear algebra: graded homework and exams; worked out homework solutions; discussed with students their homework problems.

**Teaching Development** (Cornell University)

Certificate for Instructional Teaching, Cornell University

*Spring 2000*

T.A. Training, Cornell University Department of Mathematics

*Fall 1999*

## **AFFILIATIONS**

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American Mathematical Society

*Since 1999*

## **REFERENCES**

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### **Research**

**Reyer Sjamaar** (*thesis advisor*) Department of Mathematics, Cornell University, Ithaca, NY, 14853,

(607) 255-3624, sjamaar@math.cornell.edu

**Victor Guillemin** Department of Mathematics, Massachusetts Institute of Technology, Cambridge, MA, 02139

(617) 253-4983, vwg@math.mit.edu

**Susan Tolman** Department of Mathematics, University of Illinois at Urbana-Champaign, Urbana, IL, 61801

(217) 244-6260, stolman@math.uiuc.edu

**Lisa Jeffrey** Department of Mathematics, University of Toronto, Toronto, Canada,  
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**Yael Karshon** Department of Mathematics, University of Toronto, Toronto, Canada,  
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### **Teaching**

**Paul Selick** Department of Mathematics, University of Toronto, Toronto, ON, Canada  
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(416) 978-4584, selick@math.toronto.edu