

# NATHAN C. GEER

## CURRICULUM VITAE

School of Mathematics  
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### Education.

UNIVERSITY OF OREGON, EUGENE, Ph.D., Mathematics	June 2004
Advisor: Professor Arkady Vaintrob	
COLORADO STATE UNIVERSITY, FORT COLLINS, B.S. in Mathematics	June 1998

### Academic Positions.

Postdoctoral Fellow, Georgia Institute of Technology	August 2004 - present
Invited Visiting Researcher, Universit de Bretagne Sud, Vannes, France	April 2006 / July 2007
Invited Visiting Researcher, IRMA, Strasbourg, France	May - June 2007
Graduate Teaching Fellow , University of Oregon	August 1998 - June 2004

**Research Interests.** Low Dimensional Topology, Quantum Groups and Lie Theory

### Selected Grants, Awards and Fellowships.

<i>NSF Division of Mathematical Sciences Grant 0706725</i>	July 2007 - July 2010
<i>AMS/NSF Travel Research Grant, ICM, Madrid, Spain</i>	August 2006
<i>Harrison Research Award, University of Oregon</i>	June 2004
<i>Johnson Research Fellowship, University of Oregon.</i>	June 2001 / June 2003

### Research Publications.

- [1] *The Kontsevich integral and quantized Lie superalgebras*, *Algebr. Geom. Topol.* **5** (2005), no. 45, 1111–1139.
- [2] *The Etingof-Kazhdan quantization of Lie superbialgebras*, *Adv. Math.* **207** (2006), no. 1, 1–38.
- [3] (with B. Patureau-Mirand) *Multivariable link invariants arising from  $\mathfrak{sl}(2|1)$  and the Alexander polynomial*, *J. Pure Appl. Algebra* **210** (2007), no. 1, 283–298.
- [4] *Some remarks on quantized Lie superalgebras of classical type*, *J. Algebra* **314** (2007) no. 2, 565–580.
- [5] (with P. Etingof) *Monodromy of the trigonometric KZ equations*, To appear *Int Math Res Notices*.
- [6] (with B. Patureau-Mirand) *Multivariable link invariants arising from Lie superalgebras of type I*, submitted.
- [7] (with B. Enriquez) *Compatibility of quantization functors of Lie bialgebras with duality and doubling operations*, submitted.
- [8] (with B. Patureau-Mirand) *On the colored HOMFLY-PT, multivariable and Kashaev link invariants*, submitted.
- [9] (with B. Patureau-Mirand and V. Turaev) *Renormalized quantum invariants*, submitted.
- [10] (with B. Patureau-Mirand) *An invariant trace for the category of representations of Lie superalgebras*, submitted.
- [11] (with G. Karaali) *Quantization of super dynamical  $r$ -matrices*, preprint.

**Invited Conference Lectures.**

Cascade Topology Seminar Boise, Idaho	October 2007
International Conference on Quantum Topology Institute of Mathematics, VAST, Ha-Noi, Vietnam	August 2007
International Congress of Mathematicians Short Communication, Madrid, Spain	August 2006
Pure Mathematics Symposium University of Zurich, Switzerland	June 2006
AMS National Meeting Special Session: Quantum Invariants of Knots and 3-Manifolds, San Antonio, TX	January 2006
Joint Meeting of AMS, DMV, and MG Special Session: Quantum Knot Invariants, Mainz, Germany	June 2005
Workshop on Representation Theory and Geometry University of California, Berkeley	May 2005
AMS National Meeting Special Session: Quantum Topology, Atlanta, GA	January 2005
AMS National Meeting Special Session: Low-Dimensional Topology, Phoenix, AZ	January 2004
Knots in Poland 2003 Banach Center, Bedlewo, Poland	July 2003

**Selected Recent Invited Colloquia and Seminar Lectures.** (Full list available on line.)

University of California, Riverside, Colloquium	November 2007
Indiana University, Topology Seminar	October 2007
University of California, Berkeley, Subfactor Seminar	October 2007
University of California, Davis, Geometry/Topology Seminar	October 2007
University of California, Santa Cruz, Algebra and Number Theory Seminar	October 2007
Massachusetts Institute of Technology, Infinite-Dimensional Algebra Seminar	September 2007
University of Wisconsin-Madison, Lie Theory Seminar	September 2007
Universit de Bretagne Sud, Vannes, France, Seminaire du LMAM	July 2007
IRMA, Strasbourg, France, Seminaire Quantique	May 2007
University of Calgary, Calgary, Canada, Colloquium	March 2007
University of Nantes, Nantes, France, Topology Seminar	April 2006
Jussieu Institute of Mathematics, Paris, France, Topology Seminar	April 2006
University of Oregon, Colloquium	March 2006
Emory University, Topology Seminar	February 2006
University of Georgia, Topology/Geometry Seminar	January 2006
IRMA, Strasbourg, France, Seminaire Quantique	June 2005
Universit de Bretagne Sud, Vannes, France, Seminaire du LMAM	June 2005
Massachusetts Institute of Technology, Infinite-Dimensional Algebra Seminar	February 2005

## Memberships and Service.

<i>Organizer of Geometry and Topology Seminar</i> , Georgia Institute of Technology	2005-2006
<i>Co-Organizer of Cascade Topology Seminar</i> , Eugene, Oregon	Fall 2003
<i>Organizer of Representations of Quivers Summer Seminar</i> , University of Oregon	Summer 2001
<i>American Mathematical Society</i> , Member	Since 1998
<i>Journal Referee</i> : Algebraic and Geometric Topology, Communications in Mathematical Physics, Contemporary Mathematics, Inventiones Mathematicae, Knot Theory and its Ramifications, Representation Theory (an electronic journal published by AMS).	

**Teaching Experience.** I have taught over twenty courses during my academic career as a graduate student at the University of Oregon and as a Postdoctoral Fellow at Georgia Institute of Technology. In particular, I have been the lead instructor for the following classes:

Lie Algebras and Representation Theory	graduate course taught to PhD students in mathematics and physics; topics included: representations of Lie algebras, universal enveloping algebras of Lie algebras and the classification theorem for semi-simple Lie algebras	Fall 2006
Ordinary Differential Equations	an introduction to the theory of ODEs, included linear systems of ODEs and power series solutions of ODEs	Spring 2002
Calculus (all levels)	taught all levels of calculus multiple times; was responsible for writing lesson plans, giving lectures, supervising TAs and graders, writing exams, determining grades and creating different activities for the class; class sizes ranged from 25 to 150	Fall 2000— present
Elementary Functions and College Algebra	standard precalculus courses; taught these courses various times as a masters student at the University of Oregon	Fall 1998— Spring 2000

## References.

Dror Bar-Natan, University of Toronto, [drorbn@math.toronto.edu](mailto:drorbn@math.toronto.edu)  
Pavel Etingof, Massachusetts Institute of Technology, [etingof@math.mit.edu](mailto:etingof@math.mit.edu)  
Stavros Garoufalidis, Georgia Institute of Technology, [stavros@math.gatech.edu](mailto:stavros@math.gatech.edu)  
Nicolai Reshetikhin, University of California, Berkeley, [reshetik@math.berkeley.edu](mailto:reshetik@math.berkeley.edu)  
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