

# Jakob Lindblad Blaavand

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## Education

- |                |   |
|----------------|---|
| 2001 – 2004    | High School, Århus Statsgymnasium, Denmark  |
| 2005 – 2008    | B.Sc. Mathematics, Aarhus University  |
| 2008 – 2011    | Honours M.Sc. Mathematics, Aarhus University  |
| 2008 – 2011    | Ph.D. studies, CTQM/QGM, Aarhus University  |
| 2010           | Visiting Research Scholar at University of California, Berkeley, visiting Prof. Nicolai Reshetikhin |
| 2011 – present | D.Phil studies mathematics, Balliol College, Oxford University                                      |

## Publications

1. With Jørgen Ellegaard Andersen, *Asymptotics of Toeplitz operators and applications in TQFT*, Travaux Mathematique, University of Luxembourg in the volume 19 *Lectures of the GEOQUANT School*, 2011, p. 167–201
2. *RNA er jo bare matematik!*, *Aktuel Naturvidenskab*, nr. 6 2011

## Research interests

My Research interests lie in the intersection of differential geometry, algebraic geometry and theoretical physics. While being a PhD-student at QGM, Aarhus University under the supervision of Prof. Jørgen Ellegaard Andersen, I studied Topological Quantum Field Theories and their relation to Moduli Spaces of various different geometric structures on a Riemann Surfaces. I especially worked with geometric quantization of moduli spaces of flat connections, and its relation to deformation quantization. After commencing my D.Phil studies in Oxford under the supervision of Prof. Nigel Hitchin, my focus has shifted towards understanding the moduli space of Higgs bundles. Currently I'm looking at a Fourier transform for Higgs bundles. My focus is on the differential geometric side of the story, but does also branch into the realm of algebraic geometry.

## Organisational

Organiser of the *Junior Geometry and Analysis Seminar* at University of Oxford in the academic year 2012 – 2013.

## Prizes, Scholarships

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|---|------------------------------------|
| <i>Travel Grant for Mathematicians</i>                  | 3 year full scholarship, 2011–2014 |
| <i>Travel Grant, Knud Højgaards Fond</i>                | for study at UC Berkeley, 2010     |
| <i>Travel Grant, Oticonfonden</i>                       | for study at UC Berkeley, 2010     |
| <i>Travel Grant, Etatsraad C. G. Filtenborg</i>         | for study at UC Berkeley, 2010     |
| <i>Travel Grant, Aarhus Universitets Forskningsfond</i> | for study at UC Berkeley, 2010     |
| <i>Young Scientists Competition</i>                     | 1.000 kr., 2004                    |

## Teaching Experience

- Michaelmas 2012 Retained Lecturer at Jesus College, Oxford University.  
 Trinity 2012 Reading seminar on university teaching of mathematics, run by Prof. Peter Neumann, Oxford University.
- Hilary 2012 Teaching Assistant for Prof. Andrew Dancer in B3b Algebraic Curves, Oxford University.  
 Michaelmas 2011 Teaching Assistant for Prof. Andrew Dancer in B3a Geometry of Surfaces, Oxford University.
- Spring 2011 Tutor in Curves and Surfaces, Aarhus University.  
 July 2010 *Knot theory and the Jones-polynomial* Lecture series given at UNF Math Camp 2010, July 2010, University of Copenhagen.
- Spring 2010 Tutor in Complex Analysis and Linear Algebra, Aarhus University.  
 Autumn 2009 Tutor in Fourier Analysis and Multivariate Calculus, Aarhus University.  
 Spring 2009 Tutor in Introduction to Analysis (sequences, infinitesimal calculus) and Fourier Analysis, Aarhus University.
- Autumn 2008 Tutor in Introduction to Pure Maths (basic introduction to mathematical proofs, and set- and number theory), Aarhus University.
- Autumn 2007 Tutor in Calculus, Aarhus University.  
 2007 – 2011 "Besøgsservice" at the Department of Mathematical Sciences, Aarhus University. Service provided for High School classes, where I gave lectures on a variety of subjects, from continued fractions, cryptology and complex numbers to knot theory and the mathematics behind Google.

## Talks

- 2012 Junior Geometry and Analysis Seminar, University of Oxford. *Geometric Quantization – An introduction*, Jan 26.  
 QGM Student Retreat 2012, Aarhus Denmark, *Nahm transform for Higgs bundles*, May 30.  
 Junior Geometry and Analysis Seminar, University of Oxford. *Nahm transforms in differential geometry*, Oct 11.
- 2011 QGM Friday Lunch Seminar, Aarhus University, Denmark. *Turaev–Viro Invariants of 3-manifolds*, Jan 28.  
 GEOMAPS Retreat, Aarhus Denmark. *Berezin–Toeplitz Deformation Quantization of Abelian Varieties*, Jun 7.  
 FFS, Aarhus University, Denmark. *What the hell is a quantization?*, Sep 9  
 QGM Geek Club, Aarhus Denmark. *Knot theory and the Jones-polynomial*, Sep 17.  
 Invariant Society (UGMS), University of Oxford. *Knot theory and the Jones-polynomial*, Nov. 28
- 2010 UNF Math Camp, Denmark. Lecture course titled *Knot theory and the Jones-polynomial*, Jul 12-16  
 University of California, Berkeley, GRASP Seminar *3-manifold invariants derived from link invariants*, Nov. 5.

## Conferences and workshops

*QGM Nielsen Retreat 2012*

Sandbjerg, Denmark, October 2012.

*Indo–Spanish Conference on Geometry and Analysis*

ICMAT Madrid, Spain, September 2012.

*British Topology Meeting 2012*

Cambridge, UK, September 2012.

*QGM and GEOMAPS Student retreat*

QGM Aarhus University, Denmark, June 2012.

*Third International School on Geometry and Physics: Geometry and Quantization of Moduli Spaces*

CRM Barcelona, Spain, March 2012.

*UK–Japan Winter School 2012*

Oxford, UK, January 2012

*Aarhus Gauge Theory*

QGM Aarhus, Denmark, August 2011

*Master Class: Instantons, Knots and Khovanov*

QGM Aarhus, Denmark, August 2011

*GEOMAPS Retreat 2011*

QGM Aarhus, Denmark, June 2011

*Master Class: Generalized Geometry*

QGM Aarhus, Denmark, May 2011.

*Quantization of Singular Spaces*

QGM Aarhus, Denmark, December 2010

*Quantum Dilogarithm and Quantum Teichmüller Theory*

QGM Aarhus, Denmark, August 2010.

*NZIMA workshop on TQFT's and Knot Homology Theories*

Hahei, New Zealand, January 2010

*NZMRI Summer Workshop*

Hanmer Springs, New Zealand, January 2010

*Quantization of gauge systems*

Aarhus University, Denmark, November 2009

*CTQM Nielsen Retreat*

Sandbjerg, Denmark, October 2009

*Summer School on Link-homology*

Paris, France, June 2009

*CTQM-GEOMAPS Nielsen Retreat, in Honour of Nicolai Reshetikhin's Fiftieth Birthday*

Sandbjerg, Denmark, October 2008

## Miscellaneous

Computer Skills    Advanced knowlegde of HTML, CSS, ASP, PHP, Windows, Mac, Microsoft Office.  
                           Familiarity with Mathematica, Maple, Adobe CS Suite, L<sup>A</sup>T<sub>E</sub>X.

Languages            Native language: Danish.  
                           English: advanced.  
                           Understands German, Norwegian and Swedish. Knowlegde of French.

## General interests

Mathematics and new science in general. I'm also very interested in how lay people experience science and mathematics, and how to communicate science and mathematics to a broad audience.

Sports. In my spare time I'm doing a lot of running, and hiking. In the summer of 2006 a friend and I walked 550 km in the north of Spain at the Camino, an old ancient pilgrimage route to Santiago de Compostella.

Since 1990, member of the Danish Scout and Guide Association.

## References

- Supervisor in Oxford Nigel Hitchin, [hitchin@maths.ox.ac.uk](mailto:hitchin@maths.ox.ac.uk). Savilian Professor of Geometry, University of Oxford.
- Supervisor in Aarhus Jørgen Ellegaard Andersen, [andersen@imf.au.dk](mailto:andersen@imf.au.dk). Professor and Director of CTQM/QGM, Aarhus University.
- Supervisor in Berkeley Nicolai Reshetikhin, [reshetik@math.berkeley.edu](mailto:reshetik@math.berkeley.edu). Professor at University of California Berkeley.

Last updated: November 19, 2012  
<http://lindbladblaavand.dk>