Florian Klimm

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Education

2014–present **DPhil (PhD)**, *University of Oxford*, Kellogg College.
Systems Approaches to Biomedical Sciences Centre for Doctoral Training
Mathematical Institute

2012–2014 **Master of Science (Physics)**, *Humboldt-Universität zu Berlin*.
Specialisation: Statistical Physics and Nonlinear Dynamics

2011–2012 **Fulbright Scholar**, *University of California, Santa Barbara*.
Participation in the Education Abroad Programm of the UCSB

2008–2012 **Bachelor of Science (Physics with minor in Mathematics)**, *Humboldt-Universität zu Berlin*.

2001–2008 **Abitur (high school diploma)**, *Humboldt-Gymnasium*, Eichwalde.
Advanced courses: Mathematics, Physics
Class Valedictorian

Scholarly work

(* indicates equal contribution by multiple authors)

Working Papers

[1] **FK***, and Benjamin F Maier*. A Network Science Summer Course for High School Students *(under review)* `https://github.com/floklimm/network-summer-school`

Publications

[2] Megan M Sperry, Qawi K Telesford, **FK**, and Danielle S Bassett. Rentian scaling for the measurement of optimal embedding of complex networks into physical space. *Journal of Complex Networks*, 5(2):199–218, 2016.

[3] Lia Papadopoulos, Pablo Blinder, Henrik Ronellenfitsch, **FK**, Eleni Katifori, David Kleinfeld, and Danielle S. Bassett. Comparing two classes of biological distribution systems using network analysis. *PLOS Computational Biology*, 14(9):1–31, 09 2018.

[4] Dane Taylor, **FK**, Heather A Harrington, Miroslav Kramár, Konstantin Mischaikow, Mason A Porter, and Peter J Mucha. Topological data analysis of contagion maps for examining spreading processes on networks. *Nature Communications*, 6, 2015.

[5] **FK**, Javier Borge-Holthoefer, Niels Wessel, Jürgen Kurths, and Gorka Zamora-López. Individual node's contribution to the mesoscale of complex networks. *New Journal of Physics*, 16(12):125006, 2014.

[6] **FK**, Danielle S Bassett, Jean M Carlson, and Peter J Mucha. Resolving structural variability in network models and the brain. *PLoS Computational Biology*, 10(3):e1003491, 03 2014.

Peer-reviewed Conference Abstracts

[7] **FK**, Charlotte M Deane, Jonny Wray, and Mason A Porter. Reconfiguration of protein interaction networks during nematode development *The International Conference on Complex Networks and Their Applications 2017*

Doctoral Thesis (submitted)

title Generalised networks for protein interaction analysis

supervisors Prof. Mason Porter, Prof. Charlotte Deane, and Dr. Jonny Wray

examiners Prof. Gesine Reinert and Dr. Mariano Beguerisse Díaz (transfer of status), Prof. Jotun Hein and Prof. Felix Reed-Tsochas (confirmation of status), Prof. Heather Harrington and Prof. James Wakefield (DPhil)

Master Thesis

title Characterisation of individual nodes in the mesoscale of complex networks

supervisors Prof. Jürgen Kurths and Dr. Gorka Zamora-López

Bachelor Thesis

title Charge transmission through single molecules – A density matrix approach

supervisors Prof. Beate Röder and Dr. Volkhard May

Study Group Papers

(authors in alphabetical order)

2016 **Root Segmentation Over Multiple Time Points**, *Multi-scale Biology Study Group University of Birmingham*, Henry Allen, Laura Cooper, Gustav Delius, Meurig Gallagher, Tom Johnson, **FK**, Ferdinando Randisi, Tom Shearer, and Clare Ziegler.

2015 **Abstract Modelling of Adverse Outcome Pathways**, *Quantitative Systems Pharmacology Study Group AstraZeneca* , Gerold Baier, Teresa Collins, Joanne Dunster, Ciarán Fisher, Enuo He, Andrzej Kierzek, John King, **FK**, Gary Mirams, Tom Snowden, and John Ward.

Honours

2018 **Award for 'Contribution to the life of the department'**, *Mathematical Institute, University of Oxford*.

2018 **EPSRC Doctoral Prize**, *University of Oxford*.

2018 **Public Engagement Prize**, *Doctoral Training Centre, University of Oxford*.

2017 **Best Talk Award**, *London Mathematical Society*, Graduate Student Meeting.

2017 **MCR Excellence Award**, *Kellogg College University of Oxford*.

2017 **Runner-Up 'Best Talk Award'**, *SIAM Student Chapter Conference Reading*.

2011 **Silver Medal**, *University Physics Competition*.

2008 **Humboldt-Prize**, *Humboldt-Gymnasium*, for 'outstanding GPA and his exceptional dedication to the high school'.

Research Experience

10/2018–10/2019 **Postdoctoral Researcher**, *University Oxford*, Department of Statistics, Prof. Charlotte Deane & Prof. Gesine Reinert.
Liver-specific protein interaction networks

10/2018–present **Research Member of the Common Room**, *University Oxford*, Kellogg College.

6/2015–10/2018 **Doctoral Student**, *University Oxford*, Mathematical Institute, Prof. Mason Porter, Prof. Charlotte Deane, Dr. Jonny Wray & Prof. Philip Maini.
Network generalisations for protein interaction analysis
Research project in cooperation with pharmaceutical company *e-Therapeutics*

4/2015–5/2015 **Short Project**, *Roche Basel*, Prof. Chris Yau, Dr. Peter Humburg & Dr. Satu Nahkuri.
High performance computing for eQTL analysis

11/2013–8/2014 **Academic Visitor**, *Potsdam Institute for Climate Impact Research*, Prof. Jürgen Kurths.
Climate network analysis – Extreme precipitation during the Indian Summer Monsoon

8/2013–10/2013 **Academic Visitor**, *University of Oxford*, Mathematical Institute, Dr. Mason Porter.
Filtrations, Persistence homology, and contagion dynamics on networks

10/2012–7/2013 **Research Assistant**, *Technical University Berlin*, Department of Software Engineering and Theoretical Computer Science, Dr. Timm Lochmann.
Analyzation and modeling of single neuron train spikes in mice olfactory neurons

6/2012–9/2012 **Research Assistant**, *University of North Carolina at Chapel Hill*, Department of Mathematics, Prof. Peter J. Mucha.
Network analysis of neurological networks received from diffusion spectrum imaging

1/2012–6/2012 **Research Internship**, *University of California, Santa Barbara*, Departments of Physics & Psychological and Brain Sciences, Dr. Danielle Bassett.
Comparison of neurological data properties with various models
Numerical calculation of topological fractal dimension and Rentian scaling

8/2010–9/2010 **Research Internship**, *Humboldt-Universität zu Berlin*, Department of Physics, Dr. Volkhard May.
Understanding the principles of charge transmission through single molecules
Analytical and numerical calculations of master equations

Teaching Experience

Christ Church, University of Oxford

Michaelmas 2018 **Stipendiary Lecturer (Tutor)**.
Quantum Theory (Part A), Differential Equations I (Part A), and Probability (Part A)

Somerville College, University of Oxford

Hilary 2017 **Tutor for Undergraduates**.
Integral Transforms (Part A)

Michaelmas 2016 **Tutor for Undergraduates**.
Quantum Theory (Part A)

Mathematical Institute, University of Oxford

Hilary 2018 **Tutor**.
Networks (Part C)

Hilary 2017 **Teaching Assistant**.
Networks (Part C)

Michaelmas 2016 **Teaching Assistant**.
Graph Theory (Part B)

Michaelmas 2015 **Teaching Assistant**.
Numerical Solutions to Differential Equations II (Part B)

Doctoral Training Centre, University of Oxford

Michaelmas 2018 **Senior Demonstrator & Lecturer**.
Introduction to Programming

Michaelmas 2015 & 2018 **Demonstrator**.
HTML and Web-Design

Michaelmas 2015 **Demonstrator**.
Introduction into Matlab

Humboldt-Universität zu Berlin & Charité Berlin

2010/13/14 **Teaching Assistant**.
Supervisor at the Physical laboratory for students of Dentistry

Winter 2009 **Lecturer & Tutor**.
Introduction to university-level Mathematics for Physicists

Teaching Qualifications

2017 Associate Fellowship of the Higher Education Academy

2015 Teaching Assistant Training Mathematical Insitute University of Oxford

Outreach

3/2019–6/2019 **Virtual Reality Programmer**, *Dimensions: the Mathematics of Symmetry and Patterns* Ashmolean Museum of Art and Archaeology.
Creating a virtual reality experience for a general public audience

29/4/2018 **Speaker**, *Oxford Maths Festival* Mathematical Institute, University of Oxford.
Networks: Describing an Interconnected World for general public

15/11/2017 **Speaker**, *Graduate Open Day* Mathematical Institute, University of Oxford.
Community Detection in Networks for prospective students

28/9/2017 **Speaker**, *Tag der Wissenschaft & Wirtschaft* Humboldt-Gymnasium Eichwalde.
Biomathematics and Networks for high school students

Summer 2016 **Co-Organiser & Lecturer**, *Schülerakademie*.
Summer school on *Networks and Complex Systems* for high school students, 16 days

2015 **Tutor**, Masterclass.
Networks for middle school students, two 45 min sessions

2015 **Translation**, Network Literacy: Essential Concepts and Ideas *from English into German*.

Voluntary Work & Services

2018–present **Postdoctoral Representative**, *Departmental Committee*, Department of Statistics, University of Oxford.

2018–present **Organiser**, *Networks Seminar*, Mathematical Institute, University of Oxford.

2018 **Co-organiser**, *SIAM-IMA Student Chapter Conference*, University of Oxford.

2017–2018 **Treasurer**, *SIAM Student Chapter*, University of Oxford.

2017–2018 **Member**, *Consultative Committee for Graduate Students*, Mathematical Institute Oxford.

2016–2017 **President**, *Middle Common Room*, Kellogg College, (in this position member of various college committees).

2015–2016 **Treasurer**, *Middle Common Room*, Kellogg College.

2012–2013 **Mentor**, Stanford University in Berlin.

2009–2011 **Member**, Kommission für Lehre und Studium *(Committee of Studies)*, Institut für Physik der Humboldt-Universität zu Berlin.

2009–2011 **Mentor**, Institut für Physik der Humboldt-Universität zu Berlin.

2009–2010 **Co-organiser**, Zusammenkunft aller Physikfachschaften *(Federal Union of all Physics Student Representatives)*, Berlin/Frankfurt.

Summers 2007–2009 **Lifeguard**, Spa Town Karlshagen, Baltic Sea.

2007–2008 **Editor of the Yearbook**, *Humboldt-Gymnasium*, Eichwalde.

Peer Review

Journals *Physical Review E*, *Journal of Complex Networks*, *PLOS ONE*

Conferences International Society for Computational Biology 2018

Other UK Fulbright Commission

Scholarships

2018 **Grad Student Travel Grant**, *Joint Mathematics Meetings*.

2014–2018 **Full studentship for EU students**, *EPSRC*.

2013 **Leonardo da Vinci**, *European Commission*.

2012 **PROMOS**, *German Academic Exchange Service (DAAD)*.

2011–2012 **German-American Fulbright Program**.

2011–2012 **Full Fee Waiver**, *University of California at Santa Barbara*.

2008–2010 **Studienstiftung des Deutschen Volkes**, *German National Academic Foundation*.

Membership in Professional Organisations

2017–present Royal Statistical Society

2016–present Society for Industrial and Applied Mathematics

2014–present Complex Systems Society

2008–present Deutsche Physikalische Gesellschaft (DPG, German Physical Society)

Talks

24/02/2015 Algebraic Topology Workshop, University Oxford

6/2/2015 TOPONETS15 NetSci, Zaragoza

21/9/2015 14th Mathematics of Networks Meeting, Oxford

23/3/2016 Emphasis Workshop 'Generalized Network Structures & Dynamics', MBI Columbus, Ohio

21/9/2016 Conference on Complex Systems, Amsterdam

17/5/2017 SIAM Student Conference, Oxford

13/6/2017 Cambridge Networks Day ('flash talk')

16/6/2017 SIAM Student Conference, Reading

6/9/2017 Mediterranean School of Complex Networks

13/9/2017 2nd Symposium on Spatial Networks, Oriel College Oxford

10/11/2017	London Mathematical Society Graduate Student Meeting
29/11/2017	Complex Networks, Lyon
10/1/2018	Joint Mathematics Meeting, San Diego
17/4/2018	COXIC at Imperial College, London
25/4/2018	Kellogg College Seminar, Oxford
12/6/2018	NetSciEd Satellite, Paris
14/6/2018	NetSci, Paris
7/12/2018	The Connected Past, Oxford

Languages

German	**Native speaker**	
English	**Fluent**	*UniCERT IV, TOEFL iBT with 107 points (30/28/24/25)*
French	**Basic**	*4 years of high school education, participation in student exchange*
Latin	**Intermediate**	*3 years of high school education*