Curriculum vitae

Univ. Prof. Dr. rer. nat. habil. Benedikt Jahnel
Greifswalder Straße 198
10405 Berlin, Germany

Diplom mathematician (D)
Diplom music educator (D)
Master of arts (USA)

Born May 28th 1980 in St. Martin D'Heres (France)

Two sons (9 & 11)

Research interests

- Gibbs measures and phase transitions
- Stochastic geometry and interacting particle systems
- Probabilistic methods for mobile ad-hoc networks

University education

06/2021	Habilitation at Technische Universität Berlin Germany *Stochastic geometry and communication networks & statistical mechanics for point processes and stochastic dynamics* Promoters: Prof. Dr. Wolfgang König, Prof. Dr. Sabine Jansen, Prof. Dr. Aernout van Enter, and Prof. Dr. François Baccelli
10/2011 - 05/2014	PhD student at Ruhr-University Bochum Germany, member of the DFG project SFB/TR 12 'Symmetries and Universality in Mesoscopic Systems' *Gibbs measures under local discretization and rotation dynamics* Supervisors: Prof. Dr. Christof Külske, Prof. Dr. Aernout van Enter, and Prof. Dr. Peter Eichelsbacher, Thesis passed with distinction: Summa cum laude
10/2010 - 10/2011	PhD student at Bergische University Wuppertal Germany
10/2003 - 10/2010	Diploma student in mathematics at Technische Universität Berlin Germany *The central limit theorem for random walks in Markovian environments* Supervisors: Prof. Dr. Jochen Blath and Prof. Dr. Noemi Kurt Thesis passed with distinction: Final grade 1.1
09/2005 - 06/2007	Master student in music at City College New York USA Master of arts: GPA 3.9
10/2000 - 04/2005	Diploma student in music education at University of Arts Berlin Germany Diploma in music education: Final grade 1.6

Scientific employments

04/2022 - present	W2-professorship for Stochastics for Applications at Technische Universität Braunschweig
11/2021	Offer for a W2-professorship for Stochastics at Philipps-Universität Marburg (declined)

01/2021 - present	Researcher at WIAS, head of the Leibniz group ‘Probabilistic Methods for Dynamic Communication Networks’
04/2019	Offer for a PostDoc with tenure track to professorship at Universität Innsbruck (declined)
01/2015 - 12/2020	Researcher at WIAS, member of the research group ‘Interacting Random Systems’ lead by Prof. Dr. Wolfgang König
06/2014 - 12/2014	PostDoc at Ruhr-University Bochum Germany

Service

04/2025 - present	Elected Studiendekan at Technische Universität Braunschweig
08/2024 - 03/2025	Elected Deputy Studiendekan at Technische Universität Braunschweig
05/2024 - present	Elected Deputy Ombudsperson at WIAS
05/2021 - 04/2024	Elected Ombudsperson at the Weierstrass Institute for Applied Analysis and Stochastics (WIAS)

Publications and preprints

Statistical mechanics

1) with U. Rozikov: *Gibbs measures for hardcore-SOS models on Cayley trees,* Preprint available at arXiv:2404.03297 (2024)
2) with J. Köppl, Y. Steenbeck, A. Zass: *The variational principle for a marked Gibbs point process with infinite-range multibody interactions*, Preprint arXiv:2408.17170 (2024)
3) with J. Köppl: *Time-periodic behaviour in one- and two-dimensional interacting particle systems*, Preprint arXiv:2402.12300 (2024)
4) with C. Külske, A. Zass: *Locality properties for discrete and continuum Widom-Rowlinson models in random environments,* Preprint arXiv:2311.07146 (2023)
5) with J. Köppl: *On the long-time behaviour of reversible interacting particle systems in one and two dimensions,* Accepted at PMP, Preprint arXiv:2303.10640 (2023)
6) with U. Rozikov: *Three-state p-SOS models on binary Cayley trees,* Journal of Statistical Mechanics: Theory and Experiment (2024)
7) with U. Rozikov: *Gibbs measures for hardcore-SOS models on Cayley trees* Journal of Statistical Mechanics: Theory and Experiment (2024)
8) with J. Köppl: *Trajectorial dissipation of Phi-entropies for interacting particle systems*, Journal of Statistical Physics, No. 119, Vol. 190 (2023)
9) with J. Köppl: *Dynamical Gibbs variational principles for irreversible interacting particle systems with applications to attractor properties*, Annals of Applied Probability, Vol. 33, 4570-4607 (2023)
10) with O. Collin, W. König: *A micro-macro variational formula for the free energy of a many-body system with unbounded marks,* Electronic Journal of Probability Vol. 28, No. 118, 1-58 (2023)
11) with N. Engler, C. Külske: *Gibbsianness of locally thinned random fields*, Markov Processes and Related Fields (2022)
12) with C. Külske: *Gibbsianness and non-Gibbsianness for Bernoulli lattice fields under removal of isolated sites*, Bernoulli, Vol. 29, No. 4, 3013-3032 (2023)
13) with C. Külske: *Gibbsian representation for point processes via hyperedge potentials*, Journal of Theoretical Probability, Vol. 34, 391-417 (2021)
14) with C. Cotar, C. Külske: *Extremal decomposition for random Gibbs measures,* Electronic Communications in Probability, Vol. 23, No. 95 (2018)
15) with C. Külske: *Attractor properties for irreversible and reversible interacting particle systems*, Communications in Mathematical Physics, Vol. 366, No. 1, 139-172 (2018)
16) with G. Botirov: *Phase transitions for a model with uncountable spin space on the Cayley tree: The general case*, Positivity, Vol. 23, 291–301 (2019)
17) with C. Külske: *The Widom-Rowlinson model under spin flip: Immediate loss and sharp recovery of quasilocality*, Annals of Applied Probability, Vol. 27, No. 6, 3845-3892 (2017)
18) with C. Külske: *Sharp thresholds for Gibbs-non-Gibbs transition in the fuzzy Potts models with a Kac-type interaction*, Bernoulli Journal, Vol. 23, No. 4A, 2808-2827 (2017)
19) with C. Külske: *Attractor properties of non-reversible dynamics w.r.t. invariant Gibbs measures on the lattice*, Markov Processes and Related Fields, Vol. 22, 507-535 (2016)
20) with C. Külske: *A class of non-ergodic weak PCAs with unique invariant measure and quasi-periodic orbit*, Stochastic Processes and their Applications, Vol. 125, 2427-2450 (2015)*

21) with G. Botirov, C. Külske: *Phase transition and critical values of a nearest-neighbor system with uncountable local state space on Cayley trees*, Mathematical Physics, Analysis and Geometry, Vol. 17, 1385-0172 (2014)
22) with C. Külske, E. Rudelli, J. Wegener: *Gibbsian and non-Gibbsian properties of the generalized mean-field fuzzy Potts-model*, Markov Processes and Related Fields, Vol. 20, 601-632 (2014)*
23) with C. Külske: *Synchronization for discrete mean-field rotators*, Electronic Journal of Probability, Vol. 19, No. 14 (2014)*
24) with C. Külske: *A class of nonergodic interacting particle systems with unique invariant measure*, Annals of Applied Probability, Vol. 24, 2595-2643 (2014)*

Stochastic geometry

25) with L. Lüchtrath, D. Mönch: *Phase transitions for contact processes on one-dimensional networks* Preprint arXiv:2501.16858
26) with D. Coupier, B. Henry, J. Köppl: *The planar lattice two-neighbor graph percolates* Preprint arXiv:2412.20781
27) with L. Lüchtrath, A.D. Vu: *First contact percolation* Preprint arXiv:2412.14987 (2024)
28) with L. Lüchtrath, M. Ortgiese: *Cluster sizes in subcritical soft Boolean models,* Preprint arXiv:2404.13730 (2024)
29) with S. Jhawar, P. Ghosh: *Large and moderate deviations in Poisson navigations,* Preprint arXiv:2403.14295 (2024)
30) with C. Hirsch, S. Jhawar, P. Juhasz: *Poisson approximation of fixed-degree nodes in weighted random connection models*, Accepted at SPA, Preprint arXiv:2311.12643 (2023)
31) with A.D. Vu: *A long-range contact process in a random environment,* Preprint arXiv:2310.12061 (2023)
32) with J. Köppl, B. Lodewijks, A. Tóbiás: *Percolation in lattice k-neighbor graphs*, Preprint arXiv:2306.14888 (2023)
33) with L. Lüchtrath, E. Jacob: *Subcritical annulus crossing in spatial random graphs*, Preprint arXiv:2411.10333 (2024)
34) with M. Heida, A.D. Vu: *An ergodic and isotropic zero-conductance model with arbitrarily strong local connectivity*, Electronic Communications in Probability Vol. 29, No. 66, 1-13 (2024)
35) with A. Hinsen, E. Cali, J.-P. Wary: *Chase-escape in dynamic device-to-device networks,* Journal of Applied Probability (2023)
36) with A. Hinsen, E. Cali, J.-P. Wary: *Connectivity in mobile device-to-device networks in urban environments*, IEEE Transactions on Information Theory (2023)
37) with S. Jhawar, A.D. Vu: *Continuum percolation in a nonstabilizing environment,* Electronic Journal of Probability Vol. 28, No. 131, 1-38 (2023)
38) with E. Cali, C. Hirsch: *Connection intervals in multi-scale dynamic networks,* Stochastic Models Vol. 39, No. 4, 851-877 (2023)
39) with M. Heida, A.D. Vu: *Stochastic homogenization on irregularly perforated domains,* Networks and Heterogeneous Media Vol. 20, No. 1, 165-212 (2025)
40) with C. Coletti, L. de Lima, A. Hinsen, D. Valesin: *Limiting shape for first-passage percolation models on random geometric graphs*, Journal of Applied Probability (2023)
41) with C. Hirsch, S. Muirhead: *Sharp phase transition for Cox percolation,* Electronic Communications in Probability, Vol. 27, No. 48, 1-13 (2022)
42) with E. Cali, C. Hirsch: *Percolation and connection times in multi-scale dynamic networks,* Stochastic Processes and their Applications, Vol. 151, 490-518 (2022)
43) with A. Tóbiás: *Absence of percolation in graphs based on stationary point processes with degrees bounded by two,* Random Structures and Algorithms, Vol. 62, No. 1, 240-255 (2023)
44) with A. Tóbiás, E. Cali: *Phase transitions for the Boolean model of continuum percolation for Cox point processes,* Brazilian Journal of Probability and Statistics, Vol. 36, No. 1, 20-44 (2022)
45) with A. Hinsen, E. Cali, J.-P. Wary: *Phase transitions for chase-escape models on Gilbert graphs*, Electronic Communications in Probability, Vol. 25, No. 25, 1-14 (2020)
46) with A. Tóbiás: *Exponential moments for planar tessellations*, Journal of Statistical Physics, Vol. 179, 90-109 (2020)
47) with W. König: *Probabilistic methods for telecommunications,* Compact Textbooks Series in Mathematics at Birkhäuser (2020)
48) with A. Tóbiás: *SINR percolation for Cox point processes with random powers,* Advances in Applied Probability, Vol. 54, No. 1, 227-253 (2021)
49) with C. Hirsch, A. Tóbiás: *Lower large deviations for geometric functionals*, Electronic Communications in Probability, Vol. 25, No. 41, 1-12 (2020)
50) with W. König: *Probabilistic methods for spatial multihop communication systems,* Published in: Topics in Applied Analysis and Optimisation, Springer, Vol. 10, 239-268 (2019)
51) with C. Hirsch: *Large deviations for the capacity in dynamic spatial relay networks*, Markov Processes and Related Fields, Vol. 25, 33-73 (2019)

*part of dissertation

52) with E. Cali, C. Hirsch: *Continuum percolation for Cox point processes*, Stochastic Processes and their Applications, Vol. 129, 3941-3966 (2019)
53) with C. Hirsch, R. Patterson: *Space-time large deviations in capacity-constrained relay networks*, Latin American Journal of Probability and Mathematical Statistics, Vol. 15, 587-615 (2018)
54) with C. Hirsch, P. Keeler, R. Patterson: *Large deviations in relay-augmented wireless networks*, Queueing Systems, Vol. 88, No. 3-4, 349-387 (2018)
55) with C. Hirsch, P. Keeler, R. Patterson: *Traffic flow densities in large transport networks*, Advances in Applied Probability, Vol. 49, No. 4, 1091-1115 (2017)
56) with C. Hirsch, P. Keeler, R. Patterson: *Large-deviation principles for connectable receivers in wireless networks*, Advances in Applied Probability, Vol. 48, 1061-1094 (2016)

Wireless network architecture

57) with A. Tóbiás: *Absence of percolation in graphs based on stationary point processes with degrees bounded by two,* Proceedings of the 12th Japanese-Hungarian Symposium on Discr. Math. & Appl. (2023)
58) with C. Ghribi, E. Cali, C. Hirsch: *Agent-based simulations for coverage extensions in 5G networks and beyond,* Proceedings of ICIN (2022)
59) with Z. Benomar, C. Ghribi, E. Cali, A. Hinsen: *Agent-based modeling and simulation for malware spreading in D2D networks,* Proceedings of AAMAS (2022)
60) with A. Hinsen, E. Cali, J.-P. Wary: *Malware propagation in urban D2D networks*, Proceedings of WiOpt/SpaSWiN (2020)
61) with C. Hirsch, A. Hinsen, E. Cali: *The typical cell in anisotropic tessellations,* Proceedings of WiOpt/SpaSWiN (2019)
62) with E. Cali, N. Gafur, C. Hirsch, T. En-Najjary, R. Patterson: *Percolation for D2D networks on street systems*, Proceedings of WiOpt/SpaSWiN (2018)
63) with P. Keeler, O. Maye, D. Aschenbach, M. Brzozowski: *Disruptive events in high-density cellular networks*, Proceedings of WiOpt/SpaSWiN (2018)

Conference, seminar and other talks

1) 02/2025 *Seminar at Weierstrass-Institute Berlin*, Berlin Germany
2) 01/2025 *Seminar at University of Augsburg*, Augsburg Germany
3) 10/2024 *Stochastic Geometry Workshop,* Lille France
4) 09/2024 *Long-range Phenomena in Percolation*, Köln Germany
5) 08/2024 *Bernoulli-ims 11th World Congress in Probability and Statistics*, Bochum Germany
6) 04/2024 *Romanovskiy Institut of Mathematics*, Tashkent Uzbekistan
7) 11/2023 *Technische Universität Braunschweig*, Braunschweig Germany
8) 10/2023 *Reutlingen University*, Reutlingen Germany
9) 09/2023 *Random Graphs and Statistical Network Analysis*, Ilmenau Germany
10) 09/2023 *Technische Universität Braunschweig*, Braunschweig Germany
11) 07/2023 *29th Nordic Congress of Mathematicians*, Aalborg Denmark
12) 06/2023 *21st INFORMS Applied Probability Society Conference,* Nancy France
13) 06/2023 *Universität Magdeburg*, Magdeburg Germany
14) 06/2023 *Universität Köln*, Köln Germany
15) 03/2023 *Random Geometric Systems*, Köln Germany
16) 02/2023 *BOS-Workshop on Stochastic Geometry*, Osnabrück Germany
17) 01/2023 *Topics in High Dimensional Probability*, Bangalor India
18) 11/2022 *IEEE CloudNet 2022*, Paris France
19) 08/2022 *Random Geometries and Stochastic Interacting Processes*, Bonn Germany
20) 04/2022 *MMS Days*, PIC Potsdam Germany
21) 03/2022 *Spring School,* Darmstadt Germany
22) 03/2022 *University of Padova,* Padova Italy
23) 11/2021 *Stochastic Geometry Days,* Dunkerque France
24) 10/2021 *University of Bath,* Bath UK
25) 09/2021 *Randomness unleashed,* Groningen The Netherlands
26) 07/2021 *Orange Seminar,* Paris France
27) 06/2021 *Charité at the Humboldt University,* Berlin Germany
28) 05/2021 *Technische Universität,* Berlin Germany
29) 01/2021 *Dyogene Seminar INRIA,* Paris France
30) 10/2020 *Universität Augsburg,* Augsburg Germany
31) 08/2020 *Bernoulli-IMS One World Symposium 2020*, Online
32) 11/2019 *Technische Universität,* Hamburg Germany
33) 11/2019 *Quaid-i-Azam University Seminar,* Islamabad Pakistan
34) 10/2019 *Probability, Analysis and Applications Workshop,* AIMS Ghana

35) 07/2019 *SPA Conference,* Evanston USA
36) 06/2019 *Phase Transitions and Particle Systems,* Berlin Germany
37) 05/2019 *Universität Hildesheim,* Hildesheim Germany
38) 04/2019 *Stochastic Modeling of Complex Systems,* Mannheim Germany
39) 03/2019 *Universität Innsbruck*, Innsbruck Austria
40) 10/2018 *Martin-Luther-Universität,* Halle-Wittenberg Germany
41) 10/2018 *University Potsdam Seminar,* Potsdam Germany
42) 09/2018 *Ibn Zohr University Seminar*, Agadir Morocco
43) 09/2018 *TU Darmstadt Seminar*, Darmstadt Germany
44) 07/2018 *Topics in Mathematical Physics*, Sao Paolo Brazil
45) 07/2018 *Geometry and Scaling of Random Structures*, Buenos Aires Argentina
46) 06/2018 *Universität Mannheim*, Mannheim Germany
47) 05/2018 *International School in Model & Simulation Based Research*, Berlin Germany
48) 05/2018 *Universität Leipzig*, Leipzig Germany
49) 04/2018 *Universidad Carlos III de Madrid Seminar*, Madrid Spain
50) 03/2018 *Random Structures in Neuroscience and Biology*, Herrsching Germany
51) 03/2018 *Evolutionary Processes on Networks*, Kigali Ruanda
52) 02/2018 *German Stochastic Days*, Freiburg Germany
53) 02/2018 *University Osnabrück Seminar*, Osnabrück Germany
54) 01/2018 *Transformations and Phase Transitions*, Bochum Germany
55) 11/2017 *Ruhr Universität Bochum*, Bochum Germany
56) 04/2017 *Technion Workshop on Stochastic Analysis and Random Fields*, Haifa Israel
57) 09/2017 *Sharif University Seminar*, Tehran Iran
58) 04/2017 *University Mainz Seminar*, Mainz Germany
59) 03/2017 *University Luxembourg Seminar*, Luxembourg
60) 02/2017 *LMU München Seminar*, München Germany
61) 01/2017 *WWU Münster Seminar*, Münster Germany
62) 10/2016 *Transformations in Statistical Mechanic*, Leiden Netherlands
63) 07/2016 *Regensburg University Seminar*, Regensburg Germany
64) 03/2016 *German Stochastic Days*, Bochum Germany
65) 03/2016 *Universität Mannheim*, Mannheim Germany
66) 02/2016 *Bucharest University Seminar*, Bucharest Romania
67) 11/2015 *Research Institute for Mathematical Sciences Seminar*, Kyoto Japan
68) 09/2015 *Recent Trends in Stochastic Analysis*, Hamburg Germany
69) 05/2015 *Marc Kac Seminar*, Utrecht Netherlands
70) 09/2014 *Applied and Geometrical Analysis*, Samarkand Uzbekistan
71) 03/2014 *German Stochastic Days*, Ulm Germany
72) 02/2014 *Symmetries & Universality in Mesoscopic Systems*, Langeoog Germany
73) 02/2014 *Spatial Models in Statistical Mechanics*, Darmstadt Germany
74) Since 2014 15 talks on popular science

Referee work

Journal of Statistical Physics; Electronic Journal of Probability; Electronic Communications in Probability; Applied Probability Journals; Stochastic Processes and Applications; Annals of Applied Probability; Reports on Mathematical Physics; Entropy; European Journal of Pure and Applied Mathematics; Phase Transitions; Markov Processes and Related Fields; Journal of Applied and Computational Topology; Indian Journal of Pure and Applied Mathematics; National Research, Development and Innovation Office of Hungary; DAAD; Czech Science Foundation

Organized workshops, conferences and sessions

10/2025 *Recent Developments in Interacting Random Systems,* Weierstrass Institute Berlin
03/2025 *GPSD Invited Session,* TU Dresden
02/2025 *Stochastic Processes on Random Geometries,* TU Braunschweig
08/2024 *Bernoulli-ims 11th World Congress Contributed Session*, Bochum, Germany
09/2024 *Interacting Particles in the Continuum,* TU Eindhoven
01/2024 *Dynamics of Random Geometric Structures,* Weierstrass Institute Berlin
10/2022 *Recent Trends in Spatial Stochastic Processes,* TU Eindhoven, The Netherlands
06/2022 *Random Point Processes in Statistical Physics*, Weierstrass Institute Berlin
11/2020 *Stochastic Geometry and Communications*, Weierstrass Institute Berlin
10/2019 *Probability, Analysis and Applications Workshop,* AIMS Accra, Ghana
07/2019 *SPA Contributed Session,* Northwestern University Evanston, USA

11/2018 *WIAS - PDI Open Access Day*, Weierstrass Institute Berlin
02/2017 *WIAS Days*, Weierstrass Institute Berlin
11/2016 *Probabilistic Methods in Telecommunications*, Weierstrass Institute Berlin

Funding

Research grants

01/2024 - 12/2025	**Math+ research grant: *Data Transmission in Dynamical Random Networks* (160k €)**
03/2024 - 02/2027	**DFG research grant: *Gibbs Point Processes in Random Environment (200k €)***
10/2022 - 10/2023	Seed funding TU Braunschweig: *Random Periodic Orbits and Periodic Measures* (1.2k € with Y. Wu)
10/2022 - 10/2023	ECAS fellowship: *Random Periodic Orbits and Periodic Measures in Interacting Particle Systems* (1k € with Y. Wu)
01/2021 - 12/2026	**Leibniz junior research group: *Probabilistic Methods for Dynamic Communication Networks* (1,000k €)**
01/2021 - 12/2023	DFG research grant within SPP2265: *Statistical Mechanics of Interlacement Processes* (350k € with W. König & A. Drewitz)
01/2019 - 09/2022	Math+ research grant: *Influence of Mobility on Connectivity* (172k € with W. König)
09/2018 - 08/2022	DAAD research grant: *Gibbs Measures on Random Processes* (200k € with W. König & D. Becherer)
06/2017 - 12/2018	ECMath research grant: *Data Mobility in Ad-hoc Networks: Vulnerability & Security* (86k € with W. König)
10/2010 - 10/2011	DFG research grant proposal: *SDEs Describing Critical Fluctuations in a Van der Waals – Maxwell gas* (granted after leave)

Industry collaborations

09/2020 - 08/2021	Cooperation with major French telecommunication company: *Malware Propagation in Mobile Device-to-Device Networks* (35k €)
12/2019 - 11/2020	Cooperation with major French telecommunication company: *Connectivity Improvements in Mobile D2D Networks* (35k €)
12/2018 - 11/2019	Cooperation with major French telecommunication company: *Coverage and Mobility in D2D Networks* (35k €)
07/2018 - 06/2019	Cooperation with major French telecommunication company: *Data Mobility in Networks: Vulnerability & Security* (35k €)
11/2017 - 09/2018	Cooperation with major French telecommunication company: *The Typical Cell in Anisotropic Tessellations* (29k €)
11/2016 - 10/2017	Cooperation with major French telecommunication company: *Continuum Percolation Theory Applied to D2D* (35k €)

Workshop support

10/2022 - 10/2022	EURANDOM: *Interacting Particles in the Continuum* (10k € with F. Redig & W. Ruzel)
10/2022 - 10/2022	NETWORKS: *Interacting Particles in the Continuum* (4k € with F. Redig & W. Ruzel)
10/2022 - 10/2022	STAR: *Interacting Particles in the Continuum* (4k € with F. Redig & W. Ruzel)
01/2024 - 01/2024	Math+: *Dynamic Spatial Random Systems* (2k €)
01/2024 - 01/2024	SPP: *Dynamic Spatial Random Systems* (3k €)
10/2022 - 10/2022	NETWORKS: *Recent Trends in Spatial Stoch. Proc.* (8k € with P. Horn & J. Kumjathy)
10/2022 - 10/2022	STAR: *Recent Trends in Spatial Stoch. Proc.* (4k € with P. Horn & J. Kumjathy)
10/2022 - 10/2022	EURANDOM: *Recent Trends in Spat. Stoch. Proc.* (17k € with P. Horn & J. Kumjathy)

Scholarships and awards

09/2005 - 05/2007	DAAD postgraduate scholarship
01/2000 - 08/2011	Several music awards

Teaching

Certificate ‘Professional Teaching at Universities’ (200h): Moderation, motivation, time-management, presentation techniques, etc.

Lectures

04/2025 - 07/2025	*Geometry* (2 SWS, TU Braunschweig)
10/2024 - 02/2025	Point *Processes* (4 SWS, TU Braunschweig) with Partha Ghosh
10/2024 - 02/2025	*Introduction to Probability Theory for Teachers* (4 SWS, TU Braunschweig)
10/2023 - 02/2024	*Markov Processes* (4 SWS, TU Braunschweig) with Partha Ghosh
10/2023 - 02/2024	*Introduction to Probability Theory* (4 SWS, TU Braunschweig)

04/2023 - 07/2023	*Geometry* (2 SWS, TU Braunschweig)
04/2023 - 07/2023	*Probability Theory and Discrete Financial Mathematics* (4 SWS, TU Braunschweig)
10/2022 - 02/2023	*Introduction to Probability Theory* (4 SWS, TU Braunschweig)
04/2022 - 07/2022	*Probability Theory and Discrete Financial Mathematics* (4 SWS, TU Braunschweig)
04/2020 - 07/2020	*Spin Systems and Phase Transitions* (2 SWS, TU Berlin) with Dr. Taggi
04/2018 - 07/2018	*Spatial Stochastic Models for Telecommunications* (2 SWS, TU Berlin) with Prof. König, new lecture notes and book
10/2017 - 02/2018	*Mathematics for Engineers* (4 SWS, TU Berlin) codesign of new combined module for analysis and linear algebra

Seminars

04/2025 - 07/2025	Master *Seminar in Stochastics* (2 SWS, TU Braunschweig)
10/2024 - 02/2025	*Bachelor Seminar in Stochastics* (2 SWS, TU Braunschweig)
04/2023 - 07/2023	*Bachelor Seminar in Stochastics* (2 SWS, TU Braunschweig)
10/2022 - 02/2023	*Master Seminar in Stochastics* (2 SWS, TU Braunschweig)
04/2022 - 07/2022	*Bachelor Seminar in Stochastics* (2 SWS, TU Braunschweig)
04/2020 - 07/2020	*Spin Systems and Phase Transitions* (2 SWS, TU Berlin) with Dr. Taggi
04/2018 - 07/2018	*Spatial Stochastic Models for Telecommunications* (2 SWS, TU Berlin) with Prof. König
04/2011 - 07/2011	*Interacting Particle Systems* (2 SWS, Bergische University Wuppertal)

Minicourses

07/2023 - 07/2023	*Percolation Theory,* (5 lectures, Probability and Geometry on Configuration Spaces, Berlin)
08/2022 - 08/2022	*Introduction to Percolation Theory,* (2 lectures, Hausdorff Center for Mathematics, Bonn)
09/2019 - 10/2019	*Introduction to Probability Theory* (10 lectures, AIMS Ghana)
09/2018 - 09/2018	*Spatial Stochastic Models with Applications in Telecommunications* (4 lectures, University Osnabrück summer school)
08/2017 - 08/2017	*Stochastic Geometry in Telecommunications,* (3 lectures, TU Berlin summer school)

Assistances

10/2014 - 02/2015	*Ordinary Differential Equations* (lecture, Ruhr-University Bochum)
04/2014 - 07/2014	*Random Walks on Graphs* (seminar, Ruhr-University Bochum)
10/2012 - 02/2013	*Mathematics for Physicists* (lecture, Ruhr-University Bochum)
04/2012 - 07/2012	*Statistics I* (lecture, Ruhr-University Bochum)
10/2011 - 02/2012	*Probability Theory II* (lecture, Ruhr-University Bochum)
10/2010 - 02/2011	*Probability Theory I* (lecture, Bergische University Wuppertal)

Additional teaching in music

09/2006 - 05/2007	*Jazz Ensembles* (assistant, City College New York)
10/2003 - 02/2004	*Eartraining* & *Music Theory* (assistant, University of Arts Berlin)
01/2006 - present	*Jazz Masterclasses* (internationally)

Supervision

Leibniz Academy Certificate ‘Leadership Development Program’ (90h): self-leadership, leading others, collegial case consultation

PostDoc

11/2022 - present	*Interacting Particle Systems* (TU Braunschweig, primary supervisor)
11/2022 - present	*Long-range Percolation* (WIAS, primary supervisor)
03/2024 - 07/2024	*Data Transmission in Random Networks* (WIAS, primary supervisor)
09/2021 - 08/2023	*Large Deviations in Wireless Networks* (WIAS, primary supervisor)

PhD

ongoing	*Gibbs Point Processes in Random Environment* (TU Braunschweig, primary supervisor)
ongoing	*Continuum Gibbs Variational Principles* (TU Braunschweig, primary supervisor)
ongoing	*Statistical Physics of Communication Networks* (WIAS, primary supervisor)
01/2025	*Data Mobility in Ad Hoc Networks: Vulnerability and Security* (WIAS, primary supervisor)
09/2024	*Percolation in Random Environments & Stochastic Homogenisation* (WIAS, primary supervisor)
01/2022	*The Modification of Boolean Models in Random Network Analysis* (Osnabrück, ext. examiner)

Diplom

10/2021	*Große Abweichungen des Durchsatzes bei zufälligen Mediumzugangsprotokollen* (TU Berlin, secondary supervisor, with Prof. König)

Master

ongoing *Large deviations for high interferences*
(TU Berlin, secondary supervisor, with Prof. König)

11/2024 *Ein Mean-Field Modell für das interagierende Bosegas*
(TU Berlin, secondary supervisor, with Prof. König)

10/2024 *Witten-Laplacian mit binären Spinvariablen*
(TU Braunschweig, secondary supervisor, with Prof. Bach)

06/2024 *Scharfe Phasenübergänge in gerichteter Perkolation*
(TU Braunschweig, primary supervisor)

03/2024 *Phasenübergang im Widom-Rowlinson-Modell*
(TU Berlin, secondary supervisor, with Prof. König)

08/2022 *Strategien für Zugänge zu einem Kommunikationsmedium*
(TU Berlin, secondary supervisor, with Prof. König)

06/2022 *Degree distributions in dense communication networks*
(AIMS Ghana, primary supervisor)

06/2022 *A random box version of the interacting Bose gas*
(Uni Potsdam, secondary supervisor, with Prof. König)

05/2022 *Analyticity of the Capacity Functional of the Infinite Cluster in the Boolean Model*
(TU Berlin, secondary supervisor, with Prof. König)

04/2022 *Dynamical Gibbs variational principles for irreversible interacting particle systems*
(TU Berlin, primary supervisor)

05/2021 *Gibbsianness of locally-thinned random fields*
(TU Berlin, primary supervisor)

10/2020 *Charakteristika zufälliger Kachelungen*
(TU Berlin, secondary supervisor, with Prof. König)

11/2019 *Die Kapazität in einem hochdichten D2D-Netzwerk*
(TU Berlin, secondary supervisor, with Prof. König)

10/2019 *Ein diskretes Modell für zufällige Nachrichtentrajektorien*
(TU Berlin, secondary supervisor, with Prof. König)

08/2019 *Zufällige Nachrichtenhopentscheidungen in einem Kommunikationssystem*
(TU Berlin, secondary supervisor, with Prof. König)

06/2019 *Percolation phase transitions for the SIR model with random powers*
(TU Berlin, secondary supervisor, with Prof. König)

03/2019 *Die Kapazität in einem hochdichten D2D Netzwerk*
(TU Berlin, secondary supervisor, with Prof. König)

12/2018 *Ein Gibbs'sches Modell für Verkehrsfluss*
(TU Berlin, secondary supervisor, with Prof. König)

07/2018 *Markov Chain Monte Carlo for Message Routing*
(TU Berlin, secondary supervisor, with Prof. König)

12/2017 *Informationskapazität in großen zufälligen Kommunikationsnetzwerken*
(TU Berlin, secondary supervisor, with Prof. König)

04/2017 *Modellierung und Analyse eines hochdichten zufälligen Telekommunikations-systems*
(TU Berlin, secondary supervisor, with Prof. König)

09/2013 *Phase Transitions in the Generalized Potts and Fuzzy Potts Models in Mean Field*
(Ruhr-University Bochum, informal co-supervision, with Prof. Külske)

09/2013 *Gibbs Properties of the Generalized Potts and Fuzzy Potts Model in Mean Field*
(Ruhr-University Bochum, informal co-supervision, with Prof. Külske)

Bachelor

ongoing *Degenerierte Gitterperkolationsmodelle*
(TU Braunschweig, primary supervisor)

ongoing *The throughput in a random medium access model in continuous time*
(TU Berlin, secondary supervisor, with Prof. König)

ongoing *Große Abweichungen für den Durchsatz bei Datenübertragungsprotokollen*
(TU Berlin, secondary supervisor, with Prof. König)

08/2024 *Witten-Laplacian mit binären Spinvariablen*
(TU Braunschweig, secondary supervisor, with Prof. Bach)

02/2024 *Phasenübergang im dichten Erdös-Renyi Graphen*
(TU Berlin, secondary supervisor, with Prof. König)

09/2023 *Spatial preferential attachment graph models*
(TU Berlin, secondary supervisor, with Prof. König)

08/2023 *Ein interagierendes Bose-Gas im hydrodynamischen Grenzwert*
(TU Berlin, secondary supervisor, with Prof. König)

07/2023 *k-Nachbar Perkolation*
(TU Braunschweig, primary supervisor)

07/2023 *The throughput in an ALOHA model with several channels*
(TU Berlin, secondary supervisor, with Prof. König)

07/2023 *Ein Markov'sches Modell für zufälligen Zugang zum Kommunikationsmedium*
(TU Berlin, secondary supervisor, with Prof. König)

11/2022	*Characterisation of the phases in continuum percolation* (TU Berlin, secondary supervisor, with Prof. König)
09/2022	*Erfolgsrate in ALOHA-Protokollen für Medienzugang* (TU Berlin, secondary supervisor, with Prof. König)
09/2022	*Phasenübergang in einem modifizierten freien Bosegas* (TU Berlin, secondary supervisor, with Prof. König)
07/2022	*Ein Meanfield-Modell für das interagierende Bosegas* *(TU Berlin, secondary supervisor, with Prof. König)*
06/2022	*Randomized box version of the interacting Bose gas* *(Uni Potsdam, secondary supervisor, with Prof. Roelly)*
05/2022	*Gemischte Perkolation* (TU Berlin, secondary supervisor, with Prof. König)
02/2022	*Fixation on Abelian graphs* (TU Berlin, secondary supervisor, with Prof. König)
11/2021	*k-hop Percolation* (TU Berlin, secondary supervisor, with Prof. König)
10/2021	*Occurrence of Bose-Einstein condensate* (TU Berlin, secondary supervisor, with Prof. König)
10/2021	*Konvergenzgeschwindigkeit des Random-Waypoint-Modells gegen ihre invariante Verteilung* (TU Berlin, secondary supervisor, with Prof. König)
08/2021	*Die Konvergenz des Random-Waypoint-Modells in die invariante Verteilung* (TU Berlin, secondary supervisor, with Prof. König)
06/2021	*Konnektivität via empirische Maße und deren große Abweichungen* (TU Berlin, secondary supervisor, with Prof. König)
01/2021	*Large Deviations for High Interferences* (TU Berlin, secondary supervisor, with Prof. König)
10/2019	*Ausdünnung eines Punktprozesses und Sendestrategien* (TU Berlin, secondary supervisor, with Prof. König)
12/2018	*Stochastische Entscheidungsprobleme zur Vermeidung von Interferenz* (TU Berlin, secondary supervisor, with Prof. König)
11/2018	*Stochastische Entscheidungsprobleme in Multihopsystemen* (TU Berlin, secondary supervisor, with Prof. König)
05/2018	*Optimierung des Durchsatzes mit kontinuierlicher Perkolation* (TU Berlin, secondary supervisor, with Prof. König)
10/2017	*Ein Gibbs-Ansatz für Nachrichtentrajektorien in einem hochdichten Kommuni-kationsnetzwerk* (TU Berlin, secondary supervisor, with Prof. König)
03/2017	*Perkolation mit Interferenz bei beschränkter Sprungzahl* (TU Berlin, secondary supervisor, with Prof. König)
05/2011	*Renewal Theory* (Ruhr-University Bochum, informal co-supervision, with Prof. Külske)