

Curriculum vitae

András József Tóbiás

as of September 5, 2021

Name	András József Tóbiás
Academic qualification	PhD (Dr. rer. nat.)
Place and date of birth	Budapest, 16.05.1992
Nationality	Hungarian
Current affiliation	Research Assistant (postdoc) at TU Berlin, Institute of Mathematics, in Prof. Dr. Noemi Kurt's working group "Mathematical Stochastics with Applications to statistical Physics and Biology"
Office at TU Berlin	Technische Universität Berlin, Institut für Mathematik Straße des 17. Juni 136, Raum MA 767, 10623 Berlin, Germany
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E-mail	tobias@math.tu-berlin.de
Spoken languages	Hungarian (native), English (C1), German (teaching experience), Latin (B2)
Programming knowledge	Basic knowledge in Wolfram <i>Mathematica</i> , Maple and Python (Sage). LaTeX.
Professional webpage	page.math.tu-berlin.de/tobias

Education

2005–2011	High school: ELTE Radnóti Miklós School, Budapest
September 2011 - June 2014	Bachelor in Mathematics at the Budapest University of Technology and Economics. Bachelor's thesis: "The axiom system of classical harmony". Supervisor: Dr. Ákos G. Horváth
October 2014 - June 2016	Master in Mathematics at TU Berlin. Master's thesis: <i>Highly dense mobile communication networks with random fadings</i> . Supervisor: Prof. Dr. Wolfgang König
July 2016 - March 2019	PhD student in Mathematics at TU Berlin with Wolfgang König. PhD thesis: <i>Message routing and percolation in highly dense multihop networks</i> . Supervisor: Prof. Dr. Wolfgang König

Work experience

September 2007 - August 2013	Young leader at the Children's Railway, Budapest. Organizing free-time activities, excursions and summer camps for 10–14-year-old children
September 2012 - June 2014	Student assistant at the Institute of Mathematics of the Budapest University of Technology and Economics
April 2019- (ongoing)	Research Assistant (postdoc) at TU Berlin in Noemi Kurt's working group

Scholarships, fellowships, memberships

January 2013	Campus Hungary scholarship for a group study visit to the mathematical faculties of Wrocław, Poland
October 2014 - June 2016	Phase I scholarship holder at the Berlin Mathematical School (BMS)
July 2016 - March 2019	Phase II scholarship holder at the BMS
July 2016 - March 2017	Associated member of the RTG 1845 <i>Stochastic Analysis</i>
June 2017 (4 weeks)	Accommodation granted by the local organizers at the PIMS–CRM Probability Summer School in Vancouver, Canada
November 2017- (ongoing)	Member of the DMV Fachgruppe Stochastik
May 2019 - (ongoing)	Postdoctoral faculty member of BMS and MATH+

Teaching experience

September 2012 - June 2014 (*)	Student assistant (homework correction of Analysis I-III, office hours for students)
August 2017 (×)	BMS Summer School “Probabilistic and statistical methods for networks” (assistance and exercise class)
Summer 2018 (×)	Spatial stochastic models for telecommunications (assistance)
Summer 2019 (◇)	Stochastics for Informatics students (assistance and tutorials)
Winter 2019/20 (◇)	Insurance mathematics (assistance, exercise class), Analysis 2 for engineering students (tutorials)
Summer 2020 (◇)	Stochastics for Informatics (lectures)
Winter 2020/21 (◇)	Analysis II for mathematicians (assistance, exercise class and tutorials)
Summer 2021 (◇)	Analysis III for mathematicians (assistance and exercise classes)
Winter 2021/22 (×) (upcoming)	Probability II (discrete-time martingales, basic ergodic theory, random walks and Brownian motion) (assistance and exercise classes)

Language: (*): Hungarian, (×): English, (◇): German.

Organization of academic and collateral activities

2016	Student representative at the Berlin Mathematical School (BMS)
July 2016	Jury member of the DMV Student Conference at TU Berlin
February 2017	Organizing the 5th Student Conference of BMS
2017–2019	Organizing the weekly “What is...?” student seminars at BMS
December 2019	Organizing the <i>Dies Mathematicus 2019</i> at TU Berlin
November 2020 - (ongoing)	Participation in the committee of the TU Berlin Center of Junior Scholars
September 2022 (upcoming)	Organizing the 3rd BMS-BGSMath workshop (in Barcelona, Spain)

Talks and poster presentations (selected)

April 2015	Presentation of my bachelor’s thesis subject at the Hungarian national student research contest at Babeş-Bolyai University, Cluj Napoca, Romania
November 2016	Poster presentation at the “Workshop on probabilistic methods in telecommunication” at WIAS Berlin
November 2016	Talk about my master’s thesis at the “Dies Mathematicus 2016” at TU Berlin
November 2017 and January 2019	Two talks at Berlin–Leipzig workshops in analysis and stochastics at MPI Leipzig: “A Gibbsian model for message routing in highly dense multihop networks” and “Signal to interference ratio percolation for Cox point processes”
March 2018	Talk at the 13th German Probability and Statistics Days in Freiburg: “Routing properties in a Gibbsian model for highly dense multihop networks”
May 2018	Talk “Continuum percolation on random structures”, as part of the colloquium talk “Probabilistic models in telecommunication” by W. König at a BIMoS Day, TU Berlin
June 2018	Talk at the International Workshop of Applied Probability in Budapest, Hungary: “Routing properties in a Gibbsian model for highly dense multihop networks”
February 2019 and March 2020	Two short talks at spring schools in probability at TU Darmstadt: “Signal to interference ratio percolation for Cox point processes” and “Degree bounds and SINR percolation”
March 2019	Seminar talk about SINR percolation at the Budapest University of Technology and Economics, Department of Computer Science and Information Theory
September 2019	Two talks on the subject “Invasion and fixation of microbial dormancy traits under competitive pressure”: at the workshop “Evolutionary consequences of dormancy” at TU Berlin and at the SPP 1590 Colloquium at the University of Bielefeld

June 2020 and June 2021	Online talks on the subject “SINR percolation and degree bounds”: at the Seminar Probability and Geometry of the Ruhr-Universität Bochum and at the Barcelona Probability Seminar
August 2020	Prerecorded talk “Particle systems with coordination” at the Bernoulli-IMS One World Symposium 2020
September 2020 and December 2020	Online talks on the subject “The interplay of dormancy and transfer in bacterial populations: Invasion, fixation and coexistence regimes”: at the workshop “Active and dormant friends of multiple merger coalescents and seedbanks” and at the Prob-L@B seminar of the University of Bath
November 2020	Invited talk “SINR percolation and k -nearest neighbour graphs” at the workshop “Stochastic Geometry and Communications” at WIAS Berlin
April 2021	Online talk “Infection dynamics in the presence of virus-induced dormancy” at the Mathematics Colloquium of the Mathematical Institute of the Serbian Academy of Sciences and Arts
October 2021 (upcoming)	Online talk “Host-virus dynamics in the presence of contact-mediated dormancy” at the German Probability and Statistics Days Mannheim

Further study visits, summer schools, and scholarships

January 2013	Group study visit to the mathematical faculties of Wrocław, Poland: Uniwersytet Wrocławski and Politechnika Wroclawska
August 2013	Individual study visit to Leeds, United Kingdom to Robert Sturman, the programme manager of the bachelor’s study program Mathematics and Music
April 2016	Participation in the <i>Stochastic Geometry</i> spring school and conference in Nantes, France, organized by the Lebesgue Institute
September 2016	Visit and discussion about telecommunications at the IHP, Frankfurt (Oder)
May 2017	Visit and discussion about telecommunications at the Orange France, Châtillon
June 2017	Participation in the PIMS-CRM Probability Summer School in Vancouver, Canada
August - September 2017	Participation in the BMS summer school “Spatial stochastic models for telecommunications” at TU Berlin, with teaching and organization tasks
January 2021	Digital participation in the Oberwolfach Workshop “Spatial Networks and Percolation”

Research interests

- Point processes, stochastic geometry, and continuum percolation, with applications in telecommunications
- Stochastic analysis with applications in biology: adaptive dynamics, population genetics, epidemiological models, contact process
- Large deviations
- Mathematical axiomatization in music theory

Publications and preprints

Published:

1. Wolfgang König and András Tóbiás. A Gibbsian model for message routing in highly dense multihop networks. *ALEA, Lat. Am. J. Probab. Math. Stat.* **16**, 211–258 (2019), see also: *arXiv:1704.03499*.

2. Wolfgang König and András Tóbiás. Routing properties in a Gibbsian model for highly dense multihop networks. *IEEE Transactions on Information Theory*, **65:11** (2019), see also: *arXiv:1801.04985*.
3. András Tóbiás. Signal to interference ratio percolation for Cox point processes, *ALEA, Lat. Am. J. Probab. Math. Stat.* **17**, 273–308 (2020), see also: *arXiv:1808.09857*.
4. Benedikt Jahnel and András Tóbiás. Exponential moments for planar tessellations. *Journal of Statistical Physics* **179**, 90–109 (2020), see also: *arXiv:1902.09857*.
5. Christian Hirsch, Benedikt Jahnel, and András Tóbiás. Lower large deviations for geometric functionals. *Electron. Commun. Probab.* **25**, paper no. 41, 12 pp., see also: *arXiv:1910.05993*.
6. Jochen Blath and András Tóbiás. Invasion and fixation of microbial dormancy traits under competitive pressure. *Stoch. Proc. Their Appl.*, **130:12**, 7363–7395 (2020), see also: *arXiv:1910.13156*.
7. Jochen Blath and András Tóbiás. The interplay of dormancy and transfer in bacterial populations: Invasion, fixation and coexistence regimes. *Theoret. Pop. Biol.*, **139**, 18–49 (2021), see also: *arXiv:2007.02805*.

Accepted:

1. Benedikt Jahnel and András Tóbiás. SINR percolation for Cox point processes with random powers. *Adv. Appl. Probab.*, to appear, see also: *arXiv:1912.07895*.
2. Benedikt Jahnel, András Tóbiás, and Elie Cali. Phase transitions for the Boolean model of continuum percolation for Cox point processes. *Brazilian Journal of Probability and Statistics*, to appear, *arXiv:2003.06206*.
3. Adrián González Casanova, Noemi Kurt, and András Tóbiás. Particle systems with coordination. *ALEA, Lat. Am. J. Probab. Math. Stat.*, to appear, see also: *arXiv:2001.05802*.

Submitted:

1. Benedikt Jahnel and András Tóbiás. Absence of percolation in stationary random graphs with degrees bounded by two. *arXiv:2010.03187* (last revised in June 2021).
2. Julio Nava-Trejo, Verónica Miró Pina, Etienne Nzabarushimana, András Tóbiás, Adrián González Casanova, and Inés González Casanova. The role of connectivity on COVID-19 preventive approaches. (*Link to medRxiv*) (last revised in March 2021).
3. Jochen Blath, Tobias Paul, and András Tóbiás. A stochastic adaptive dynamics model for bacterial populations with mutation, dormancy and transfer. *arXiv:2105.09228* (last revised in May 2021).
4. Jochen Blath and András Tóbiás. Virus dynamics in the presence of contact-mediated host dormancy. *arXiv:2107.11242* (last revised in July 2021).

Unpublished:

1. András Tóbiás. The axiom system of classical harmony. *arXiv:1604.02698* (last revised in July 2018).

Published, non-mathematical:

1. László Rétvári and András Tóbiás. Nagyapám is ott volt – Beszélgetés Rétvári Lászlóval a forradalomról (My grandfather was also there – A discussion with Rétvári László about the revolution [of 1956 in Hungary]).
In: Szónoky–Pál–Karancsi: *A határok kutatója* (The researcher of borders – A book devoted to Ágnes Pál on the occasion of her 65th birthday), Magyarországi Tudományos Társaság, Szeged–Szabadka, 2007, pp. 28–37.