

Curriculum Vitae Bálint Tóth

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Contacts:

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Education and Degrees:

1980: Diploma in Physics, University of Bucharest, Romania
1988: PhD in Mathematics, Hungarian Academy of Sciences, Budapest
1999: DSc Hungarian Academy of Sciences, Budapest

Research interests:

probability theory, stochastic processes, random walks, limit theorems, statistical physics (classical and quantum), randomness in space and time

Employment history:

1982-1989: research fellow, [Mathematical Institute of the Hungarian Academy of Sciences](#)
1989-1991: research associate & lecturer, [Department of Math., Heriot-Watt University](#)
1989-1998: senior researcher, [Mathematical Institute of the Hungarian Academy of Sciences](#)
1998-2017: prof. of math., [Inst. of Mathematics, Budapest Univ. of Technology](#) (2012-17: half time)
2012-present: Heilbronn Chair of Probability (half time), [School of Mathematics, Univ. of Bristol](#)
2017-present: scientific councillor, [A. Rényi Institute of Mathematics of the Hung. Acad. of Sciences](#)

Major administrative duties:

1998-2012: head of [Dept. of Stochastics, Institute of Mathematics, Budapest Univ. of Technology](#)
2005-2009: director, [Institute of Mathematics, Budapest University of Technology](#)
2009-2012: head of [Graduate School of Mathematics at Budapest University of Technology](#)

Editorial work for international journals:

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| Chief Editor (2016 - 2018) | Annals of Applied Probability |
| Associate Editor (2003 - 2015) | Annales de l'Institut Henri Poincaré – Prob. et Statist. |
| Associate Editor (2012-2014) | Electronic {Journal of / Communications in} Probability |
| Chief Editor (2009 - 2011) | Electronic Journal of Probability |
| Associate Editor (2001 - 2005) | Annals of Probability |

Other service to the international professional community:

Regular refereeing for all major journals of probability theory and stochastic processes and occasionally for journals of theoretical physics.

Regularly reviewing grant proposals for some of the major scientific granting funds. (e.g. [NSF](#), [ESF](#), [ERC](#), [NWO](#), [IUF](#), [LMS](#), [EPSRC](#), etc.).

Regularly reviewing professional job/promotion proposals and applications, at professorial level. (US, CA, UK, DE, NL, FR, etc.)

Chair of [Bernoulli Society Committee for Conferences on Stochastic Processes](#) (2014-15).

Honours:**Award:****Awarded by:**

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| Invited Speaker at ICM 2018 (Probability section) | ICM 2018 Program Committee |
| EPSRC Established Career Fellow (2016-21) | EPSRC (UK) |
| Elected member of Academia Europaea (2016) | Academia Europaea |
| Szele Tibor Memorial Medal (2010) | János Bolyai Mathematical Society |
| Knight's Cross of the Hung. Rep. (2009) | President of the Hungarian Republic |
| | returned to the President of the Republic on 21 August 2016 |
| Academy Prize (2003) | Hungarian Academy of Sciences |
| Széchenyi Professorship (1999-2002) | Hungarian Government |
| Paul Erdős Prize (1994) | Hungarian Academy of Sciences |
| Young Researcher's Prize (1987) | Hungarian Academy of Sciences |

International conferences organized:

- 1995: *Disordered Systems and Statistical Physics*, [ELTE Bolyai College](#) - Budapest
 1998: *Random Walks*, Erdős Center - [Rényi Institute](#) - Budapest
 1999: *Probability and Physics of Disordered Systems*, Erdős Center - [Rényi Inst.](#) - Budapest
 2001: *Dynamical Systems and Related Fields*, [BME](#)-Budapest
 2003: *Randomness in Space and Time*, [BME](#)-Budapest
 2005: *Particle Systems with Several Conservation Laws*, [Oberwolfach](#) Miniworkshop
 2005: *Large Scale Behaviour of Interacting Particle Systems*, [Rényi Institute](#)-Budapest
 2006: *Randomness and Hyperbolicity in Dynamical Systems*, [Rényi Institute](#)-Budapest
 2008: *Hydrodynamics and Fluctuations in Interacting Particle Systems*, [BME](#)-Budapest
 2013: *Entropy and Non-Equilibrium Dynamics*, [BME](#)-Budapest
 2013: *Random Walks – Crossroads and Perspectives*, [Rényi Institute](#)-Budapest
 2014: *Probability, Analysis and Dynamics*, [University of Bristol](#)
 2014: *Laplacians, Random Walks and Quantum Spin Systems*, [University of Bristol](#)
 2016: *Large Scale Stochastic Dynamics*, [MF Oberwolfach](#) Workshop
 2017: *Random Walks with Memory*, [CIRM Workshop](#), Luminy-Marseille
 2017: *Laplacians, Walks, Condensation*, [University of Bristol](#)
 2018: *Probability, Analysis and Dynamics - 2018*, [University of Bristol](#)
 2019: *Large Scale Stochastic Dynamics*, [MF Oberwolfach](#) Workshop

Membership in international scientific program committees, etc. in recent years:

- 2002-2007: [ESF 'Random Dynamics \(RDSES\)'](#) (international steering committee)
 2005: [9th Brazilian School of Probability](#), Sao Sebastiao (SPC)
 2006: [31st Conference on Stochastic Processes and their Applications](#), Paris (SPC)
 2007: [32nd Conference on Stochastic Processes and their Applications](#), Urbana-Ch. (SPC)

- 2008: [Interacting Particle Systems, ...](#), Institut Henri Poincaré, Paris, Sept-Dec 2008 (SPC)
 2009: [13th Brazilian School of Probability](#), (SPC)
 2011: [Dynamics & Transport in Disordered Systems](#) semest. The Fields Inst. Toronto (SPC)
 2010-2013: [Bernoulli Society Committee for Conferences on SPA](#) (member)
 2010-2015: [ESF 'Random Geometry ... \(RGLIS\)'](#) (international steering committee)
 2013: [36th Conference on Stochastic Processes and their Applications](#), Boulder CO (SPC)
 2014-2017: [Bernoulli Society Committee for Conferences on SPA](#) (member, chair: 2014-15)
 2015: [38th Conference on Stochastic Processes and their Applications](#), Oxford UK (SPC)

Grants (since 2002):

- OTKA- 37685 (HU):** Title: *Macroscopic description of multi-component stochastic system: hydrodynamic limit and fluctuations;*
 Role: Principal Investigator
 Period: 2002.01.01-2006.12.31;
 Support: HUF 12,000,000
- OTKA- 60708 (HU):** Title: *Asymptotic behaviour of interacting particle systems: fluctuations, limit distributions, hydrodynamic limits;*
 Role: Principal Investigator
 Period: 2006.03.01-2012.02.28;
 Support: HUF 16,000,000
- OTKA- 100473 (HU):** Title: *Scaling limits of interacting particle systems;*
 Role: Principal Investigator
 Period: 2012.01.01-2016.12.31;
 Support: HUF 20,000,000
- MTA TKI (HU):** Title: *MTA-BME Stochastics Research Group;*
 Role: Head of group
 Period 1: 2002.01.01-2006.12.31;
 Support: HUF 16,000,000 / y (cca)
 Period 2: 2007.01.01-2011.12.31;
 Support: HUF 20,000,000 / y (cca)
 Period 3: 2012.01.01-2017.06.31;
 Support: HUF 24,000,000 / y
- The Leverhulme Trust (UK):** Title: *Laplacians, Random Walks, Quantum Spin Systems (Leverhulme International Network)*
 Role: Principal Investigator
 Period: 2014.07.01-2017.06.30;
 Support: GBP 125,000
- EPSRC (UK)** Title: *Random Walks and Quantum Spin Systems EPSRC Established Career Fellowship*
 Role: Principal Investigator
 Period: 2016.10.01-2021.09.30;
 Support: GBP 662,565

Longer term professional visits, visiting research positions, etc.:**Payroll position, faculty membership (2.5 years):**

- 1989-1991: [Heriot-Watt University](#) Edinburgh, [Department of Mathematics](#) (research associate, temporary lecturer)

Professeur invité (one month each):

1997, 2007, 2010: [École Normale Supérieure](#), Paris
 2001, 2003: [Institut Henri Poincaré](#), Paris
 1999: [Université de Provence -- Marseille](#)
 2017: [Institut Henri Poincaré](#), Paris

Other visiting researcher invitations (typically 2 months each):

1985 spring: [Landau Institute](#) and [Moscow State University](#)
 1986 autumn: [BIBOS Universität Bielefeld](#)
 1995 spring: [CWI Amsterdam](#)
 2002 summer: [IMPA](#) Rio de Janeiro
 2009 spring: [Insitut Mittag-Leffler](#), Stockholm

Invited lectures (selection) – 1996-2017:**Invited conference lectures (selection) – 1996-2016:**

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| 1996 August, Chicago, IL: | <i>Joint Annual Meeting of the IMS and AAS</i> |
| 1996 August, Edinburgh, UK: | <i>Random Polymers, ICMS</i> (two lectures) |
| 1996 October, Prague, CZ: | <i>Statistical Physics School</i> (four lectures) |
| 1997 July, Budapest, HU: | <i>Paul Erdős Memorial Conference</i> |
| 1997 October, Göteborg, SE: | <i>Random Spatial Structures</i> |
| 1997 November, Oberwolfach, DE: | <i>Random Polymers and Related Topics</i> , MFO Workshop |
| 1998 April, Dresden, DE: | <i>Dynamical Systems and Stat. Phys.</i> , Max Planck Institute |
| 1999 January, Tokyo, JP: | <i>Limit Theorems of Probability Theory</i> |
| 1999 September, Prague, CZ: | <i>Statistical Physics School</i> (four lectures) |
| 2000 July, Barcelona, ES: | Third European Congress of Mathematics |
| 2000 August, Rio de Janeiro, BR: | <i>First Latin American Congress of Mathematics</i> |
| 2000 August, Mambucaba RJ, BR: | <i>Fourth Brazilian School of Probability</i> |
| 2001 February, Vienna, AT: | <i>Random Walks</i> , Erwin Schrödinger Institute |
| 2001 September, Paris, FR: | <i>Hydrodynamic Limits</i> , Institut Henri Poincaré |
| 2002 May, Trieste, IT: | <i>Summer School on Probability</i> , ICTP |
| 2002 June, Eindhoven, NL: | Discrete Probability , EURANDOM |
| 2002 October, Eindhoven, NL: | Stochastic Models from Statistical Physics , EURANDOM |
| 2003 February, Paris, FR: | <i>Stats Geom of Random Growth Processes</i> , IHP (three lectures) |
| 2003 March, Seattle, WA: | Seminar on Stochastic Processes , SSP2003 |
| 2003 August, Cambridge, UK: | Random Growth Processes , Isaac Newton Institute |
| 2003 October, Dublin, IR: | <i>Analysis and Quantum Phys.</i> Dublin Inst. Adv. Studies |
| 2004 January, Santiago de Chile: | <i>Percolation and Particle Systems</i> |
| 2004 April, Leiden, NL: | Percolation and Particle Systems , Lorenz Centre |
| 2004 June, Firenze, IT: | NYU Summer School (five lectures) |
| 2004 June, Budapest, HU: | <i>Endre Csáki & Pal Révész Fest -- at 70</i> |
| 2004 June, Edinburgh, UK: | Oliver Penrose Fest -- at 75 , ICMS |
| 2004 August, Ubatuba, BR: | Eighth Brazilian School of Probability |
| 2004 September, Oberwolfach, DE: | Large Scale Dynamics , MFO Workshop |
| 2004 November, Lunteren NL: | <i>Dutch Stochastics Days 2004</i> (two lectures) |
| 2005 July, Santa Barbara CA: | 30th Conference on Stoch. Proc. and their Appl. (plenary) |
| 2006 March, Vienna AT: | Discrete Probability , Erwin Schrödinger Institute |
| 2006 June, Bangalore IN: | <i>Interacting Particle Systems</i> , Indian Statistical Institute |
| 2006 July, Lyon FR: | 11th Conference on Hyperbolic PDEs |
| 2006 September, Oosterend NL: | <i>Particle Systems Far From Equilibrium</i> |
| 2007 February: Marseille FR: | <i>Random Walks on Groups</i> , CIRM Luminy |
| 2007 June, Budapest HU: | <i>Miklós Csörgő Fest -- at 75</i> |

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| 2007 July, Durham GB: | <i>Advances in Random Walks</i> , London Math. Soc. Meeting |
| 2007 July, Dresden DE: | <i>Driven Systems Far From Equilibrium</i> , Max Planck Inst. |
| 2007 August, Reykjavik IS: | <i>Random Trees</i> |
| 2007 August, Oberwolfach DE: | <i>Interacting Particle Systems</i> , MFO Workshop |
| 2007 October, Fukuoka JP: | <i>Large Scale Interacting Systems</i> |
| 2007 December, Kolkata IN: | <i>50 Years Jubilee Meeting of the Indian Statistical Institute</i> |
| 2008 May, Cluj-Kolozsvár, RO: | <i>Stochastic Methods in Complex Systems</i> |
| 2008 July, Singapore SG: | <i>7th World Congress in Probability and Math. Statistics</i> |
| 2008 October, Paris FR: | <i>Particle systems and Percolation</i> , Institut Henri Poincaré |
| 2008 November, Vienna AT: | <i>Structural Probability</i> , Erwin Schrödinger Institute |
| 2008 December, Bangalore IN: | <i>Reinforced Random Walks and RWRE</i> , Indian Stat. Inst. |
| 2009 January, Haifa IL: | <i>Technion-BME Joint Probability Workshop</i> |
| 2009 May, Montreal CA: | <i>Random Spatial Processes</i> , Centre de Recherche Math. |
| 2009 May, Montreal CA: | <i>Interacting Particle Systems</i> , Centre de Recherche Math. |
| 2009 August, Chorin, DE: | <i>Berlin-Zürich Graduate Summer School</i> (5x2 lectures) |
| 2009 November, Budapest HU: | <i>Endre Csáki and Pál Révész Fest -- at 75</i> |
| 2009 November, Coventry UK: | <i>Mathematics of Phase Transitions</i> — Roman Kotecky 60 |
| 2009 December, Paris FR: | <i>Above the Critical Dimension</i> , Institut Henri Poincaré |
| 2009 December, Eindhoven NL: | <i>Dynamic Random Environments</i> , EURANDOM |
| 2010 January, Paris FR: | <i>Inhomogeneous Random Systems</i> , Institut Henri Poincaré |
| 2010 May, Marseille FR: | <i>RWRE and Reinforced RW</i> , CIRM Luminy |
| 2010 September, Osaka JP: | <i>34th Conference on Stoch. Processes and their Applications</i> |
| 2010 September, Tokyo JP: | <i>Large Scale Interacting Particle Systems</i> |
| 2010 September, Bucharest RO: | <i>Second Congress of the Roumanian Scientific Diaspora</i> |
| 2010 October, Berlin DE: | <i>Conference for Erwin Bolthausen at 65</i> |
| 2010 November, Oberwolfach DE: | <i>Large Scale Interacting Systems</i> , MFO Workshop |
| 2010 December, Marseille FR: | <i>Self-Intersection Local Times</i> , CIRM Luminy |
| 2010 December, Eindhoven NL: | <i>ESF Conf. Combinatorics and Analysis in Spatial Probability</i> |
| 2011 January, Abu Dhabi, UAE: | <i>Probab & Stat Phys</i> , NYU Abu Dhabi Inaugural Conference |
| 2011 February, Toronto CD: | <i>Interacting Processes in Random Media</i> , The Fields Institute |
| 2011 April, Lyon FR: | <i>Séminaire Hypatie Lyon-Marseille</i> , Univ. Lyon |
| 2011 April, Oxford UK: | <i>UK Easter Probability Meeting</i> , Univ. Oxford |
| 2011 September, Prague CZ: | <i>Prague School on Mathematical Physics</i> (course) |
| 2012 March, Toulouse FR: | <i>Workshop on Forest Fires</i> , Univ. Toulouse |
| 2012 May, Berkeley CA: | <i>Random Walks and Random Media</i> , MSRI |
| 2012 May, Alba Iulia RO: | <i>Probability Theory and Related Aspects</i> |
| 2012 July, Istanbul TR: | <i>Random Networks and Environments</i> , ICMS & Boğaziçi Univ |
| 2012 August, Firenze IT: | <i>Interacting Particle Systems</i> |
| 2012 October, London UK: | <i>Applied Probability Meeting</i> , Royal Statistical Society |
| 2013 April, Cambridge UK: | <i>UK Easter Probability Meeting</i> |
| 2013 May, Venezia IT: | <i>Random Combinatorial Structures and Statistical Physics</i> |
| 2013 July, Budapest HU: | <i>Paul Erdős Centennial Conference</i> |
| 2013 October, Oberwolfach DE: | <i>Large Scale Interacting Systems</i> , MFO Workshop |
| 2013 December, Oxford UK: | <i>Probability and its Applications</i> |
| 2014 April, Warwick UK: | <i>Combinatorics and Statistical Physics</i> |
| 2014 May, Hilversum NL: | <i>Graduate School of Probability and Statistics</i> (lecture series) |
| 2014 June, Rouen FR: | <i>Rencontres Mathématiques de Rouen</i> (lecture series) |
| 2014 July, Luminy/Marseille: | <i>Limit theorems in dynamics and applications</i> , CIRM Luminy |
| 2014 July, Buenos Aires AR: | <i>Stochastic Processes and their Applications</i> (plenary) |
| 2014 August, Budapest HU: | <i>Conference for the 80th Birthday of E. Csáki and P. Révész</i> |
| 2015 March, London UK: | <i>Limit Theorems in Probab – Nick Bingham at 70</i> , IC London |
| 2015 July, Haifa IL: | <i>Stochastic Processes and Random Fields</i> , Technion Haifa |
| 2015 September, Oberwolfach DE: | <i>Scaling Limits in Models of Stat. Mechanics</i> , MFO Workshop |
| 2015 November, Bonn DE: | <i>2015 Plücker Lectures</i> , Hausdorff Center Bonn |
| 2015 December, Leiden NL: | <i>Quantum Random Walks ...</i> , Lorentz Center Workshop |

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| 2016 January, Paris FR | <i>Inhomogeneous Random Systems</i> , Institut Henri Poincaré |
| 2016 March, Eindhoven NL | <i>Variational Methods...</i> , EURANDOM workshop |
| 2016 May, Vienna AT | <i>Hyperbolic Dynamics and Statistical Physics</i> , ESI Vienna |
| 2016 July, Oaxaca MX | <i>Random Structures in High Dimensions</i> , BIRS conference |
| 2016 July, Brasov RO | <i>Stochastic Analysis and Applications</i> , UT Brasov |
| 2016 December, Eindhoven NL | <i>A Guided Tour Through Random Media</i> , EURANDOM |
| 2017 June, Lyon FR | <i>Statistical Mechanics, ...</i> , Univ. de Lyon |
| 2017 August, Debrecen HU | <i>ISSPSM 2017</i> , Univ. of Debrecen |
| 2017 October, Banff CA | <i>Stochastic Analysis and its Applications</i> , BIRS |

Invited seminar and colloquium lectures, 1996-2017:

cca. 100 invited seminar and colloquium lectures various university departments and research institutes, including:

Amsterdam NL; Bath UK; Berlin DE; Bonn (DE); Boulder (CO) US; Bristol UK; Budapest HU; Cambridge UK; Cambridge (MA) US; Cluj RO; Debrecen HU; Edinburgh UK; Erlangen DE; Genève CH; Göteborg SE; Graz AT; Jerusalem IL; Kyoto JP; Lancaster (UK); Leipzig DE; London UK; Lund SE; Lyon FR; Madison (WI) US; Marseille FR; München DE; New Delhi IN; NewYork NY; Oxford UK; Paris FR; Rio de Janeiro BR; Sao Paulo BR; Seattle WA; Stockholm SE; Szeged HU; Tel Aviv IL; Toronto CA; Toulouse FR; Vancouver CA; Warwick UK; Wien AT; Zürich CH; etc.