

# Sophie Hautphenne

Associate Professor in Applied Probability

DOB: 22 November 1983  
Nationality: Belgian

## Research areas

Stochastic processes with special interest in branching processes, matrix analytic methods, demography, population processes, epidemic processes, queueing models, modelling of biological systems, and modelling of environmental issues.

## Education

- 2005 – 2009 **Ph.D. in Mathematics**, *Université libre de Bruxelles*, Belgium
  - **Thesis:** *An algorithmic look at phase-type branching processes*. Completed in Oct. 2009.
  - **Supervisor:** Guy Latouche, **co-supervisor:** Marie-Ange Remiche.
  - **Jury members:** Nigel Bean, Thomas Bruss, Gianluca Bontempi, Jean Cardinal, Udo Krieger, and Claude Lefèvre.
- 2005 – 2006 **Diplôme d'études approfondies (doctoral school)**, *Université libre de Bruxelles*, Belgium
- 2001 – 2005 **Degree in Mathematical Sciences**, *Université libre de Bruxelles*, Belgium  
First class, Summa cum laude

## Employment

- 2023 – present **School of Mathematics and Statistics**, *The University of Melbourne*, Australia  
Associate Professor
- 2017 – 2022 **School of Mathematics and Statistics**, *The University of Melbourne*, Australia  
Senior Lecturer
- 2015 – 2018 **Chair of Statistics**, *Ecole polytechnique fédérale de Lausanne (EPFL)*, Switzerland  
Scientist
- 2011 – present **School of Mathematics and Statistics**, *The University of Melbourne*, Australia  
Research fellow
  - 2010 **Département d'informatique**, *Université libre de Bruxelles*, Belgium  
Postdoctoral researcher (Nov. 2010 – Dec. 2010)
  - 2006 – 2010 **Belgian National Science Foundation (F.R.S. – F.N.R.S.)**, Belgium  
Ph.D. student (Jan. 2006 – Oct. 2009), and postdoctoral researcher (Oct. 2009 – Nov. 2010)
  - 2005 **Département de mathématique**, *Université libre de Bruxelles*, Belgium  
Full time tutor (Oct. 2005 – Dec. 2005)

## Grants and awards

- 2020 **Three-year Discovery Project**, *Population-size-dependent Branching Processes: Computational Methods and Applications in Biology*, Australian Research Council, Australia
- 2015 **Three-year Discovery Early Career Researcher Award (DECRA)**, Australian Research Council, Australia

- 2015 **Establishment Grant**, *The University of Melbourne*, Australia
- 2011 **Three-year Australian Postdoctoral Fellowship**, *Australian Research Council*, Australia
- 2006 **Four-year Research Fellow grant (aspirant)**, *F.R.S. – F.N.R.S.*, Belgium
- 2005 **Two-year Research Fellow grant**, *F.R.I.A. (F.R.S. – F.N.R.S.)*, Belgium
- 2005 **University Medal**, *Université libre de Bruxelles*, Belgium  
For graduating from Mathematics Degree with first class and highest distinction
- 2004 **Ruth and Joe Gani prize**, *Université libre de Bruxelles*, Belgium  
For best student in Probability during Bachelor Degree

## Teaching Experience

- 2020 – present **School of Mathematics and Statistics**, *The University of Melbourne*, Australia  
Lecturer and subject coordinator in
  - *Probability for Statistics* (Semester 1, 2020–2023)
 Lecturer in
  - *Probability* (Semester 1, 2020, 2021)
- 2016 – 2018 **Section of Mathematics**, *Ecole polytechnique fédérale de Lausanne*, Switzerland  
Lecturer and subject coordinator in *Applied Stochastic Processes* (Semester 2, 2016–2018)
- 2015 **University of Tasmania**, *Hobart*, Australia  
Presentation of two tutorials on branching processes. (Nov. 2015)
- 2013 **Institute of Mathematics, Ha Noi University of Natural Sciences, and Ha Noi University of Sciences and Technology**, *Ha Noi*, Vietnam  
Presentation of a series of six tutorials entitled “Matrix-analytic Methods: From Theory to Applications”, in collaboration with Giang Nguyen. (May 2013)
- 2011 – 2014 **School of Mathematics and Statistics**, *The University of Melbourne*, Australia  
Lecturer and subject coordinator in
  - *Decision Making* (Semester 2, 2012 and 2013)
 Guest lecturer at the AMSI Summer school (January 2013) for the courses
  - Structured Markov models and control theory. A unified approach via linear algebra;
  - Mathematical epidemiology: stochastic models and their statistical calibration
 Tutor in
  - *Probability* (Semester 1, 2011, 2012 and 2014)
  - *Discrete Maths and Operations Research* (Semester 2, 2011)
  - *Decision Making* (Semester 2, 2012)
- 2010 **Centre International de Rencontres Mathématiques**, *Marseille*, France  
Presentation of three lectures on matrix-analytic methods at the *Spatio-temporal risk modelling workshop* (April 2010)
- 2006 – 2009 **Département d’informatique**, *Université libre de Bruxelles*, Belgium  
Guest lecturer in
  - *Markovian Models* (Semester 1, 2009)
 Tutor in
  - *Stochastic Processes* (Semester 2, 2006 and 2008)
  - *Algorithmic Methods* (Semester 2, 2007)
- 2005 **Département de mathématique**, *Université libre de Bruxelles*, Belgium  
Tutor in
  - *Analysis* (Semester 1, 2005)
  - *Stochastic Processes* (Semester 1, 2005)
  - *General Mathematics* (Semester 1, 2005)
- 2003 – 2005 **Solvay Business School**, *Université libre de Bruxelles*, Belgium  
Tutor in
  - *General Mathematics* (Semester 2, 2003–2005)

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## Publications

### Journal papers

- [34] **S. Hautphenne** and M. Li. A fluid approach to total-progeny-dependent birth-and-death processes. *Stochastic Models*, doi:10.1080/15326349.2022.2043166, 2022.
- [33] D. Bertacchi, P. Braunsteins, **S. Hautphenne**, and F. Zucca. Extinction probabilities in branching processes with countably many types: a general framework. *ALEA, Lat. Am. J. Probab. Math. Stat.*, 19:311–338, 2022.
- [32] P. Braunsteins, **S. Hautphenne**, and C. Minuesa. Parameter estimation in branching processes with almost sure extinction. *Bernoulli*, 28(1):33–63, 2022.
- [31] M. de Gunst, **S. Hautphenne**, M. Mandjes, and B. Sollie. Parameter estimation for multivariate population processes: a saddlepoint approach. *Stochastic Models*, doi:10.1080/15326349.2020.1832895, Oct 20:1-29, 2020.
- [30] A. Davison, **S. Hautphenne**, and A. Kraus. Parameter estimation for discretely-observed linear birth-and-death processes. *Biometrics*, doi:10.1111/biom.13282, Apr 18, 2020.
- [29] P. Braunsteins and **S. Hautphenne**. The probabilities of extinction in a branching random walk on a strip. *Journal of Applied Probability*, 57(3):811–831, 2020.
- [28] P. Duchon, **S. Hautphenne**, Laurent Lehmann, and N. Salamin. Linking micro and macroevolution in the presence of migration. *Journal of Theoretical Biology*, 486:110087, 2020.
- [27] **S. Hautphenne** and S. Massei. A low-rank technique for computing the quasi-stationary distribution of subcritical Galton–Watson processes. *SIAM Journal on Matrix Analysis and Applications*, 41(1):29–57, 2020.
- [26] **S. Hautphenne**, M. Massaro, and K. Turner. Fitting Markovian binary trees using global and individual demographic data. *Theoretical Population Biology*, 128:39–50, 2019.
- [25] S. Dendievel, **S. Hautphenne**, P. Taylor and G. Latouche. The time-dependent expected reward and deviation matrix of a finite QBD process. *Linear Algebra and its Applications*, 570:61–92, 2019.
- [24] P. Braunsteins and **S. Hautphenne**. Extinction in lower Hessenberg branching processes with countably many types. *The Annals of Applied Probability*, 29(5):2782–2818, 2019.
- [23] P. Braunsteins, G. Decrouez, and **S. Hautphenne**. A pathwise approach to the extinction of branching processes with countably many types. *Stochastic Processes and their Applications*, 129(3):713–739, 2019.
- [22] **S. Hautphenne**, M. Massaro, and P. Taylor. How old is this bird? The age distribution under some phase sampling schemes. *Journal of Mathematical Biology*, 75(6-7):1319–1347, 2017.
- [21] P. Braunsteins, **S. Hautphenne**, and P. Taylor. The roles of coupling and the deviation matrix in determining the value of capacity in M/M/1/C queues. *Queueing Systems*, 83(1):157–179, 2016.
- [20] **S. Hautphenne** and G. Latouche. Lyapunov exponents for branching processes in a random environment: The effect of information. *Journal of Statistical Physics*, 163(2):393–410, 2016.
- [19] **S. Hautphenne** and M. Haviv. On bias optimal number of waiting places in the M/M/1/K queue: An application of the deviation matrix. *Probability in the Engineering and Informational Sciences*, 30(1):61-78, 2016.
- [18] **S. Hautphenne**. A structured Markov chain approach to branching processes. *Stochastic Models*, 31(3):403–432, 2015.

- [17] **S. Hautphenne**, G. Krings, J-C. Delvenne and V. D. Blondel. Sensitivity analysis of a branching process evolving on a network with application in epidemiology. *Journal of Complex Networks*, doi:10.1093/comnet/cnv001, 2015.
- [16] **S. Hautphenne**, Y. Kerner, Y. Nazarathy and P. Taylor. The intercept term of the asymptotic variance curve for some queueing output processes. *European Journal of Operational Research*, 242(2):455–464, 2015.
- [15] **S. Hautphenne** and M. Fackrell. An EM algorithm for the model fitting of Markovian binary trees, *Computational Statistics and Data Analysis*, 70:19–34, 2014.
- [14] **S. Hautphenne**, G. Latouche and G. Nguyen. On the nature of Phase-Type Poisson distributions. *Annals of Actuarial Science*, 8(1):79–98, 2014.
- [13] **S. Hautphenne** and M. Telek. Extension of some MAP results to transient MAPs and Markovian binary trees. *Performance Evaluation*, 70(9):607–622, 2013.
- [12] **S. Hautphenne**, G. Latouche and G. Nguyen. Extinction probabilities of branching processes with countably infinitely many types. *Advances in Applied Probability*, 45(4):1068–1082, 2013.
- [11] **S. Hautphenne**. Extinction probabilities of supercritical decomposable branching processes. *Journal of Applied Probability*, 49(3):639–651, 2012.
- [10] **S. Hautphenne** and G. Latouche. The Markovian binary tree applied to demography. *Journal of Mathematical Biology*, 64(7):1109–35, 2012.
- [9] **S. Hautphenne** and G. Latouche. Markovian trees subject to catastrophes: transient features and extinction probability. *Stochastic Models*, 27:569–590, 2011.
- [8] **S. Hautphenne**, G. Latouche, and M.-A. Remiche. Algorithmic approach to the extinction probability of branching processes. *Methodology and Computing in Applied Probability*, 13(1):171–192, 2011.
- [7] **S. Hautphenne** and B. van Houdt. On the link between Markovian trees and tree-structured Markov chains. *European Journal of Operational Research*, 201(3):791–798, 2010.
- [6] **S. Hautphenne**, G. Latouche, and M.-A. Remiche. Newton’s iteration for the extinction probability of a Markovian Binary Tree. *Linear Algebra and its Applications*, 428(11-12):2791–2804, 2008.

#### [Book chapter](#)

- [5] **S. Hautphenne**, K. Leibnitz, and M.-A. Remiche. Modeling of P2P file sharing with a level-dependent QBD process. *Advances in Queueing Theory and Network Applications*, Yue, Wuyi; Takahashi, Yutaka; Takagi, Hideaki (Eds.), Springer, 247–263, 2009.

#### [Refereed conference papers](#)

- [4] **S. Hautphenne** and B. Patch. Simulating population-size-dependent birth-and-death processes using CUDA and piecewise approximations. *Proceedings of the International Congress on Modelling and Simulation*, 2021.
- [3] **S. Hautphenne**, G. Latouche and G. Nguyen. Markovian trees subject to catastrophes: Would they survive forever? *Matrix-Analytic Methods in Stochastic Models*, p. 87–106. Springer New York, 2013.
- [2] **S. Hautphenne**, G. Latouche, and M.-A. Remiche. Transient features for Markovian binary trees. *Proceedings of the Fourth International ICST Conference on Performance Evaluation Methodologies and Tools*, Article No. 18, 2009.
- [1] **S. Hautphenne**, K. Leibnitz, and M.-A. Remiche. Extinction probability in Peer-to-Peer file diffusion. *ACM SIGMETRICS Performance Evaluation Review*, 34(2):3–4, 2006.

## Working papers submitted for publication

- A. Asanjarani, **S. Hautphenne**, and Y. Nazarathy. Markovian Transition Counting Processes: An Alternative to Markov Modulated Poisson Processes.
- **S. Hautphenne** and B. Patch. Birth-and-death Processes in Python: The BirDePy Package. [Provisionally accepted in *Journal of Statistical Software*]
- P. Braunsteins, **S. Hautphenne**, and C. Minuesa. Consistent least squares estimation in population-size-dependent branching processes.
- P. Braunsteins, **S. Hautphenne**, and J. Kerlidis. Linking Population-Size-Dependent and Controlled Branching Processes.
- M. He, Y.-b. Chan, and **S. Hautphenne**. Approximate Bayesian computation for Markovian binary trees in phylogenetics.

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## Research Visits

- 2022 **University of Extremadura**, Badajoz, Spain. (one week in September.)  
at the invitation of Dr Carmen Minuesa.
- 2022 **EPFL**, Lausanne, Switzerland. (several days in July- August).
- 2019 **University of Tasmania**, Hobart, Australia. (4 days in November.)  
at the invitation of Prof Malgorzata O'Reilly.
- 2019 **University of Toronto**, Toronto, Canada. (3 days in August)  
at the invitation of Dr Sebastian Engelke.
- 2019 **EPFL**, Lausanne, Switzerland. (several days in July- August).
- 2018 **Università di Milano-Bicocca**, Milan, Italy. (3 days in May.)  
at the invitation of Prof Daniela Bertacchi and Prof Fabio Zucca.
- 2016 **Chalmers University of Technology**, Gothenburg, Sweden. (4 days in September.)  
at the invitation of Prof. Peter Jagers.
- 2016 **Masaryk University**, Brno, Czech Republic. (4 days in August.)  
at the invitation of Dr. Andrea Kraus.
- 2016 **Charles Sturt University**, Albury, Australia. (2 days in March.)  
at the invitation of Dr. Melanie Massaro.
- 2015 **University of Tasmania**, Hobart, Australia. (1 week in November.)  
at the invitation of Dr. Malgorzata O'Reilly.
- 2015 **Charles Sturt University**, Albury, Australia. (4 days in March.)  
at the invitation of Dr. Melanie Massaro.
- 2014 **University of Queensland**, Brisbane, Australia. (5 days in October.)  
at the invitation of Dr. Yoni Nazarathy.
- 2014 **Charles Sturt University**, Albury, Australia. (4 days in August.)  
at the invitation of Dr. Melanie Massaro.
- 2014 **University of Canterbury**, Christchurch, New Zealand. (3 days in Feb.)  
at the invitation of Dr. Raazesh Sainudiin.
- 2013 **University of Canterbury**, Christchurch, New Zealand. (4 days in Feb.)  
at the invitation of Dr. Raazesh Sainudiin.
- 2012 **University of Canterbury**, Christchurch, New Zealand. (1 week in Aug.)  
at the invitation of Dr. Raazesh Sainudiin.
- 2010 **Université catholique de Louvain**, Louvain-la-Neuve, Belgium. (multiple visits)  
at the invitation of Prof. Vincent Blondel.

- 2009 **Università di Pisa**, Pisa, Italia. (1 week in Oct.)  
at the invitation of Prof. Dario Bini and Prof. Beatrice Meini.
- 2009 **University of Adelaide**, Adelaide, Australia. (1 week in March)  
at the invitation of Prof. Nigel Bean.
- 2009 **University of Queensland**, Brisbane. (4 days in Feb.)  
at the invitation of Prof. Phil Pollett.
- 2009 **The University of Melbourne**, Melbourne, Australia. (3 months, Jan. to March)  
at the invitation of Prof. Peter Taylor.
- 2008 **Université de Lille 1**, Lille, France. (3 days in Sept., Oct., and Dec.)  
at the invitation of Prof. Pauline Lafitte.
- 2008 **Université de Paris 6 et 7**, Paris, France. (3 days in Oct.)  
at the invitation of Dr. Vincent Bansaye.
- 2007 **The University of Melbourne**, Melbourne, Australia. (1 month, Jan.)  
at the invitation of Prof. Peter Taylor.
- 2006 **Université de Rennes**, INRIA in IRISA, Rennes, France. (2 days in July)  
at the invitation of Prof. Bruno Sericola.

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## Oral presentations at conferences and seminars

- [85] P. Braunsteins, S. Hautphenne, and C. Minuesa. Consistent estimation for population-size-dependent branching processes. *International Conference on Branching Processes and Their Applications*, September **2023**, Tashkent, Uzbekistan (online).
- [84] P. Braunsteins, S. Hautphenne, and J. Kerlidis. Linking population-size-dependent and controlled branching processes. *The 43rd Conference on Stochastic Processes and their Applications*, July **2023**, Lisbon, Portugal.
- [83] P. Braunsteins, S. Hautphenne, and C. Minuesa. Consistent estimation for population-size-dependent branching processes. *The 21st INFORMS Applied Probability Society Conference*, June **2023**, Nancy, France.
- [82] P. Braunsteins, S. Hautphenne, and J. Kerlidis. Linking population-size-dependent and controlled branching processes. *Branching Processes and Applications*, May **2023**, Angers, France. Invited by Prof. Loic Chaumont
- [81] S. Hautphenne. The probabilities of extinction in a branching random walk. *AustMS*, December **2022**, Sydney. Invited by Prof. Andriy Olenko
- [80] S. Hautphenne. The probabilities of extinction in a branching random walk. *University of Extremadura*, September **2022**, Badajoz. Invited by Dr Carmen Minuesa.
- [79] S. Hautphenne. The probabilities of extinction in a branching random walk. *2022 Stochastic Networks Conference*, June **2022**, Cornell University. Invited by Prof. Jim Dai.
- [78] P. Braunsteins, S. Hautphenne, and C. Minuesa. Parameter estimation in branching processes with almost sure extinction. *Research Webinar in Statistics, University of Geneva*, April **2021**, online. Invited by Prof. Sebastian Engelke.
- [77] P. Braunsteins, S. Hautphenne, and C. Minuesa. Weighted least squares estimation in population-size-dependent branching processes. *The 5th International Workshop on Branching Processes and their Applications*, April **2021**, online. Invited by Prof. Inés del Puerto.
- [76] P. Braunsteins, S. Hautphenne, and C. Minuesa. Inference in Population-Size-Dependent Branching Processes. *Minisymposium on Stochastic Population Dynamics*, August **2020**, online. Invited by Prof. Peter Jagers.

- [75] P. Braunsteins, S. Hautphenne, and C. Minuesa. Inference in Population-Size-Dependent Branching Processes. *Bernoulli-IMS One World Symposium*, August **2020**, online. Invited by Prof. Simon Harris. **Link to the talk:** <https://www.youtube.com/watch?v=QoHda26uzY0>
- [74] P. Braunsteins, S. Hautphenne, and C. Minuesa. Inference in Population-Size-Dependent Branching Processes. *Seventh Wellington Workshop in Probability and Mathematical Statistics*, December **2019**, Wellington, New Zealand. Invited by Prof. Mark Holmes.
- [73] S. Hautphenne. An introduction to Markovian binary trees and their applications. *The Eleventh UTAS Theoretical Phylogenetics Meeting*, November **2019**, Hobart, Australia. Keynote speaker – Invited by Prof. Malgorzata O'Reilly.
- [72] P. Braunsteins and S. Hautphenne. Extinction in lower Hessenberg branching processes with countably many types. *The 20th INFORMS Applied Probability Society Conference*, July **2019**, Brisbane, Australia.
- [71] S. Hautphenne, M. Massaro and P. Taylor. How old is this bird? The age distribution under some phase sampling schemes. *Queues, Modelling, and Markov Chains: A Workshop Honouring Prof. Peter Taylor*, June **2019**, Mount Tamborine, Australia.
- [70] S. Hautphenne. The Markovian binary tree applied to demography and conservation biology. *Colloquium at Macquarie University*, May **2019**, Sydney, Australia. Invited by Dr Lyndon Koens.
- [69] P. Braunsteins and S. Hautphenne. The probabilities of extinction in a branching random walk on a strip. *The 10th International Conference on Matrix-Analytic Methods in Stochastic Models*, February **2019**, Hobart, Australia.
- [68] P. Duchon, S. Hautphenne, L. Lehmann, and N. Salamin. The role of migration in speciation: linking micro- and macro-evolution. *The 9th International Workshop on Applied Probability*, June **2018**, Budapest, Hungary.
- [67] A. Davison, S. Hautphenne, and A. Kraus. Parameter Estimation For Discretely-observed Linear Birth-and-death Processes. *The 40th Conference on Stochastic Processes and their Applications*, June **2018**, Gothenburg, Sweden. Invited by Prof Peter Jagers.
- [66] P. Braunsteins and S. Hautphenne. The probabilities of extinction in a branching random walk on a strip. *Università di Milano-Bicocca*, May **2018**, Milan, Italy. Invited by Prof Daniela Bertacchi.
- [65] P. Braunsteins and S. Hautphenne. Extinction in block lower Hessenberg branching processes with countably many types. *4th Workshop on Branching Processes and their Applications*, April **2018**, Badajoz, Spain. Invited by Prof. Inés del Puerto.
- [64] S. Hautphenne. The Markovian binary tree applied to demography and conservation biology. *Colloquium at the University of Adelaide*, October **2017**, Adelaide, Australia. Invited by Dr Giang Nguyen.
- [63] A. Davison, S. Hautphenne, and A. Kraus. Parameter estimation for continuous-time branching processes observed at discrete times. *Melbourne-Singapore Probability and Statistics Forum*, September **2017**, Melbourne, Australia.
- [62] S. Hautphenne. The Markovian binary tree applied to the conservation of an endangered bird species. *Seminar in the Institute of Statistics at the University of Neuchatel*, September **2017**, Neuchatel, Switzerland. Invited by Dr Matthieu Wilhelm
- [61] A. Davison, S. Hautphenne, and A. Kraus. Parameter estimation for linear birth-and-death processes based on population data counts. *The 39th Conference on Stochastic Processes and their Applications*, July **2017**, Moscow, Russia.
- [60] S. Hautphenne, M. Massaro and K. Turner. The Markovian binary tree applied to the conservation of an endangered bird species. *The 39th Conference on Stochastic Processes and their Applications*, July **2017**, Moscow, Russia. Invited by Prof. Peter Jagers.

- [59] S. Hautphenne. On the extinction of branching processes with countably many types. *Probability: from East to West*, July **2017**, Prato, Italy. Invited by Prof. Kais Hamza.
- [58] P. Braunsteins and S. Hautphenne. On the extinction of lower Hessenberg branching processes with countably many types *The 19th INFORMS Applied Probability Conference*, July **2017**, Chicago, USA.
- [57] S. Hautphenne. The extinction probability of Markovian binary trees. *EPFL*, June **2017**, Lausanne, Switzerland. Invited by Prof. Daniel Kressner.
- [56] S. Hautphenne. Fitting Markovian Binary Trees using Global and Individual Demographic Data. *The 17th Conference of the Applied Stochastic Models and Data Analysis International Society*, June **2017**, London, United Kingdom.
- [55] S. Hautphenne. The Markovian binary tree applied to demography and conservation biology. *Université Pierre et Marie Curie*, May **2017**, Paris, France. Invited by Prof. Nicole El Karoui.
- [54] S. Hautphenne, M. Massaro, and K. Turner. Fitting Markovian binary trees using global and individual demographic data. *Applied Probability @ The Rock*, April **2017**, Uluru, Australia.
- [53] S. Hautphenne, M. Massaro, and K. Turner. “Growing” Markovian binary trees to save an endangered forest bird, the Chatham Island black robin. *The University of Melbourne*, November **2016**, Melbourne, Australia.
- [52] S. Hautphenne. A pathwise iterative approach to the extinction of branching processes with countably many types. *The University of Melbourne*, November **2016**, Melbourne, Australia.
- [51] P. Braunsteins, G. Decrouez, and S. Hautphenne. A pathwise iterative approach to the extinction of branching processes with countably many types. *Chalmers University of Technology*, September **2016**, Gothenburg, Sweden. Invited by Prof. Peter Jagers.
- [50] S. Hautphenne and K. Turner. Fitting Markovian binary trees using global and individual population data. *2nd Lausanne CompBio Meeting*, September **2016**, Lausanne, Switzerland.
- [49] S. Dendievel, S. Hautphenne, G. Latouche, and P. Taylor. The lost revenue function of MAP/PH/1/C queues. *StochMod 2016*, July **2016**, Louvain-la-Neuve, Belgium.
- [48] S. Hautphenne and K. Turner. Fitting Markovian binary trees using global and individual population data. *The Ninth International Conference on Matrix-Analytic Methods in Stochastic Models*, June **2016**, Budapest, Hungary.
- [47] S. Hautphenne. Non-linear regression in phase-controlled branching processes. *EPFL research retreat in statistics*, Jan. **2016**, Davos, Switzerland.
- [46] S. Hautphenne. Markovian binary trees: Definition, computation and parameter estimation. *University of Tasmania*, Nov. **2015**, Hobart, Australia. Invited by Dr. Malgorzata O’Reilly.
- [45] S. Hautphenne. An introduction to Branching Processes. *University of Tasmania*, Nov. **2015**, Hobart, Australia. Invited by Dr. Malgorzata O’Reilly.
- [44] P. Braunsteins, G. Decrouez, S. Hautphenne, and G. Nguyen. An algorithmic approach to branching processes with infinitely many types. *National Research University*, Oct. **2015**, Moscow, Russia. Invited by Asst. Prof. Geoffrey Decrouez.
- [43] P. Braunsteins, G. Decrouez, S. Hautphenne, and G. Nguyen. An algorithmic approach to branching processes with infinitely many types. *Université de Franche-Comté*, Sept. **2015**, Besancon, France. Invited by Dr. Romain Biard.
- [42] S. Hautphenne, G. Krings, J.-C. Delvenne, and V. Blondel. Sensitivity analysis of epidemic networks. *APS INFORMS*, July **2015**, Istanbul, Turkey.
- [41] S. Hautphenne, P. Taylor, and G. Latouche. The capacity value function for MAP/PH/1/C queues. *APS INFORMS*, July **2015**, Istanbul, Turkey.



- [40] S. Hautphenne. New computational approaches for branching processes in population biology. *EPFL*, May **2015**, Lausanne, Switzerland.
- [39] S. Hautphenne, M. Massaro and P. Taylor. How old is this bird? The age distribution under some phase sampling schemes. *Australia New Zealand Applied Probability Workshop*, April **2015**, Barossa Valley, Australia.
- [38] S. Hautphenne, M. Massaro and P. Taylor. How old is this bird? The age distribution under some phase sampling schemes. *The University of Melbourne*, Mar. **2015**, Melbourne, Australia.
- [37] S. Hautphenne and G. Latouche. Lyapunov exponent for multitype branching processes in a random environment. *The University of Queensland*, Oct. **2014**, Brisbane, Australia. Invited by Dr. Yoni Nazarathy.
- [36] S. Hautphenne and G. Latouche. Lyapunov exponent for multitype branching processes in a random environment. *The 7th International Workshop on Applied Probability*, June **2014**, Antalya, Turkey.
- [35] S. Hautphenne and G. Latouche. Multitype branching processes in a random environment: Would they survive forever? *The 50th ANZIAM Applied Mathematics Conference*, Feb. **2014**, Rotorua, New Zealand.
- [34] S. Hautphenne and M. Fackrell. An Expectation-Maximization algorithm for the model fitting of Markovian binary trees. *The 22nd International Workshop on Matrices and Statistics*, Aug. **2013**, Toronto, Canada. Invited by Prof. Jeff Hunter.
- [33] S. Hautphenne. A computational look at multitype branching processes. *Monash University*, Aug. **2013**, Melbourne, Australia.
- [32] S. Hautphenne. The role of the deviation matrix in asymptotic functionals of Markov chains. *INFORMS APS*, July **2013**, San Jose, Costa Rica.
- [31] S. Hautphenne. Multitype branching processes in a random environment: Would they survive forever? *Australia New Zealand Applied Probability Workshop*, July **2013**, Brisbane, Australia.
- [30] S. Hautphenne. Some problems on the extinction probability of multitype branching processes. *Monash University*, April **2013**, Melbourne, Australia. Invited by Prof. Kais Hamza.
- [29] S. Hautphenne. Some problems on the extinction probability of multitype branching processes. *The University of Melbourne*, Feb. **2013**, Melbourne, Australia.
- [28] S. Hautphenne, G. Latouche and G. Nguyen. Extinction probabilities of branching processes with infinitely many types. *The University of Melbourne*, Nov. **2012**, Melbourne, Australia.
- [27] S. Hautphenne. Algorithmic methods for branching processes. *YEQT 2012*, Nov. **2012**, Eindhoven, Netherlands. Invited by Dr Stella Kapodistria and Asst. Prof. Jacques Resing.
- [26] S. Hautphenne, G. Krings, J.-C. Delvenne and V. Blondel. Sensitivity analysis of epidemic networks. *Canterbury University*, Aug. **2012**, Christchurch, New Zealand. Invited by Dr Raazesh Sainudiin.
- [25] S. Hautphenne, G. Latouche and G. Nguyen. Extinction probabilities of branching processes with infinitely many types. *The 6th International Workshop on Applied Probability*, June **2012**, Jerusalem, Israel.
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- [23] S. Hautphenne, G. Krings, J.-C. Delvenne and V. Blondel. Sensitivity analysis of epidemic networks. *Stochastic Networks Workshop*, Apr. **2012**, Auckland, New Zealand. Invited by Prof. Ilze Ziedins

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- [19] S. Hautphenne, G. Latouche and G. Nguyen. Markovian trees subject to catastrophes: Do they survive forever? *The Seventh International Conference on Matrix-Analytic Methods in Stochastic Models*, June **2011**, New York, USA.
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- [17] S. Hautphenne, J.-C. Delvenne and G. Krings. Sensitivity analysis of epidemic networks. *The 47th ANZIAM Applied Mathematics Conference*, Jan. **2011**, Adelaide, Australia.
- [16] S. Hautphenne. Extinction probabilities of reducible branching processes. *The 24th European Conference on Operational Research*, July **2010**, Lisbon, Portugal.
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- [13] S. Hautphenne, G. Latouche and M.-A. Remiche. Transient Features for Markovian Binary Trees. *The 4th International Workshop on Tools for solving Structured Markov Chains*, Oct. **2009**, Pisa, Italy.
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- [11] S. Hautphenne and G. Latouche. The Markovian branching process applied to demography. *The 45th ANZIAM Applied Mathematics Conference*, Jan. **2009**, Caloundra, Australia.
- [10] S. Hautphenne, G. Latouche and M.-A. Remiche. Algorithmic Approach of Branching Processes and Applications in Parasitology and Demography. *Symposium of the Institute of Intelligent Information and Communications Technology (IICT) of Konan University*, Dec. **2008**, Kobe, Japan. Invited by Dr Kenji Leibnitz.
- [9] S. Hautphenne, G. Latouche and M.-A. Remiche. Algorithmic approach of branching processes and application in demography. *Université Catholique de Louvain*, Nov. **2008**, Louvain-la-Neuve, Belgium. Invited by Prof. Paul Van Dooren.
- [8] S. Hautphenne, G. Latouche and M.-A. Remiche. Approche algorithmique des processus de branchement et application en démographie. *Universités Paris 6 et 7*, Oct. **2008**, Paris, France. Invited by Dr Vincent Bansaye.
- [7] S. Hautphenne, G. Latouche and M.-A. Remiche. Matrix analytic methods in branching processes. *The 6th International Conference on Matrix-Analytic Methods in Stochastic Models*, June **2008**, Beijing, China.
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- [2] S. Hautphenne, G. Latouche and M.-A. Rémiche. Branching Processes in Phase-type Models. *Orbel 2006*, Jan. **2006**, Gent, Belgium.
- [1] S. Hautphenne, K. Leibnitz and M.-A. Rémiche. Extinction probability in Peer-to-Peer file diffusion. *Performance 2005*, Oct. **2005**, Juan-les-Pins, France.

## Professional Service

### Editorial activities

- 2022 – present Associate editor for *Statistical Inference for Stochastic Processes*.
- 2020 – present Associate editor for *Journal of Applied Probability*.
- 2017 – present Associate editor for *Stochastic Models*.
- 2018 – 2020 Academic editor for *PLOS ONE*.

### Other academic involvement

- 2019 Co-organiser of a Workshop on Queues, Modelling and Markov chains, held in honour of Peter Taylor, 2019, Mount Tamborine, Australia.
- 2019 Co-chair for MAM10 2019, Hobart, Australia.
- 2017 Publicity co-chair for Value Tools 2017, Venice, Italy.
- 2014 Co-organiser of a workshop on Matrix Analytic Methods, held at the University of Melbourne, Jan. 2014, Melbourne, Australia.
- 2012 Co-organiser of the workshop *When Probability Meets Computation* honouring Prof. Guy Latouche on his retirement, June 2012, Varese, Italy.
- 2010 Proceeding chair for the conference *Performance 2010*, Nov. 2010, Namur, Belgium.

## Languages

English (fluent), French (mother tongue), Dutch (basic).

## Hobbies

Swimming, biking, hiking, travelling, cooking.