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# Curriculum vitae – Michel Mandjes

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## Personal information

Name Mandjes, Michael Robertus Hendrikus (Michel)  
Address Maasstraat 82 III, 1078 HM Amsterdam, The Netherlands  
Birth February 14, 1970, in Zaandam, The Netherlands  
Civil status Married, father of a daughter

## Education

1982-1988 Gymnasium  $\beta$ ,  
Triniteitslyceum, Haarlem, The Netherlands.  
1988-1993 M.Sc. degree in Econometrics (cum laude),  
Vrije Universiteit (VU), Amsterdam, The Netherlands.  
1989-1993 M.Sc. degree in Mathematics (cum laude),  
Vrije Universiteit (VU), Amsterdam, The Netherlands.  
1993-1996 Ph.D. degree in Operations Research,  
Vrije Universiteit (VU), Amsterdam, The Netherlands.

## Working experience

1990-1992 Vrije Universiteit (VU), Amsterdam, The Netherlands,  
Department of Econometrics:  
Student assistant.  
1993-1996 Vrije Universiteit (VU), Amsterdam, The Netherlands,  
Department of Econometrics:  
Research assistant.  
1996-1998 KPN Research, Leidschendam, The Netherlands,  
Department of Planning, Performance, and Reliability:  
Member of technical staff.  
1999-2001 Bell Laboratories/Lucent Technologies, Murray Hill NJ, United States,  
Mathematical Sciences Research Center:  
Member of technical staff.  
2000-2004 University of Twente (UT), The Netherlands,  
Faculty of Mathematical Sciences:  
Full professor of Stochastic Operations Research.  
2000-2006 Center for Mathematics and Computer Science (CWI), Amsterdam, The Netherlands,  
Department of Probability, Networks, and Algorithms:  
Senior researcher; department head (theme leader) PNA2.  
2004-.... University of Amsterdam (UvA), The Netherlands,  
Korteweg-de Vries Institute (KdVI) for mathematics:  
Full professor of Applied Probability (as of 2006 full-time).  
2008 Stanford University, United States,  
Management Science and Engineering:  
Visiting professor (sabbatical leave from UvA).  
2013-2014 New York University (NYU), United States  
Stern School of Business:  
Visiting professor (in context of visiting faculty program between UvA and NYU).  
2014-... Programme leader ‘NETWORKS’;  
consortium on stochastic and algorithmics with University of Amsterdam, CWI,  
University of Leiden (UL), and Eindhoven University of Technology (TUE).

## Address

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Address    University of Amsterdam (UvA),  
            Korteweg-de Vries Institute for Mathematics,  
            Science Park 105, room F337,  
            1098 XG Amsterdam,  
            The Netherlands.  
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## Research interests

- *Stochastic processes and queues.* Gaussian processes - Lévy processes - asymptotic techniques - large deviations, large-buffer asymptotics, many-sources asymptotics - infinite-server queues - fluid queues - fluid limits, diffusions.
- *Queueing models for communication networks.* Models for wireline networks, IP - Feedback queues, TCP - Markov fluid models - long-range dependence, heavy tails, fractional Brownian motion, Gaussian traffic - loss networks - wireless networks, ad hoc networks - queues under various scheduling disciplines - diffusion approximations.
- *Stochastic simulation.* Fast simulation - rare events - importance sampling - exponential change of measure - splitting techniques.
- *Traffic management.* Quality of Service - service differentiation, generalized processor sharing - traffic management, resource allocation, admission control.
- *Traffic analysis.* Traffic measurements - Gaussian modeling, fractional Brownian motion - model selection - anomaly detection - bandwidth provisioning, dimensioning - measurement-based algorithms.
- *Network economics.* Charging and pricing in communication networks - bandwidth brokering - cost allocation models, resource allocation - congestion cost - Paris metro pricing.
- *Financial models.* Insurance models - risk analysis - ruin probabilities - Cramér-Lundberg theory - credit risk - Lévy-based models - Wiener-Hopf techniques - numerical inversion of Laplace transforms - option pricing.
- *Service systems.* Performance and optimization of service systems - health care applications - staffing - appointment scheduling.

## Scientific activities: research partners

Michel Mandjes has been involved in collaborations with, among others,

- Lars Norvang Andersen (*Aarhus University*, reflected Lévy processes),
- Dave Anderson (*University of Wisconsin at Madison*, chemical reaction networks, martingale techniques),
- Nick Bambos (*Stanford University*, rate-based control algorithms),
- Hans van den Berg (*TNO ICT and University of Twente*, traffic management, admission control),
- Jose Blanchet (*Columbia University*, rare-event simulation, queueing asymptotics),
- Sem Borst (*Eindhoven University of Technology and Bell Labs*, queues with heavy-tailed input, generalized processor sharing),
- Onno Boxma (*Eindhoven University of Technology*, queues with Lévy-input, road traffic modeling),
- Koen De Turck (*Supélec Paris*, time scalings, infinite-server systems),
- Krzysztof Dębicki (*University of Wrocław*, Gaussian queues, Lévy-driven queues),

- Peter Glynn (*Stanford University*, correlation structure reflected fBm, advanced simulation techniques),
- Boudewijn Haverkort (*University of Twente*, TCP modeling, Petri nets),
- Frank den Hollander (*Leiden University*, random graph models),
- Sandeep Juneja (*Tata Institute for Fundamental Research*, birthday problems, importance sampling),
- Offer Kella (*Hebrew University, Jerusalem*, Lévy processes),
- Jeong Han Kim (*Microsoft Research*, large deviations techniques),
- Krishnan Kumaran (*Exxon-Mobil Research*, traffic management, admission control, QoS differentiation),
- Petteri Mannersalo (*VTT*, sample-path large deviations, Gaussian processes),
- Debasis Mitra (*Bell Labs*, Markov fluid models, network economics, bandwidth brokering),
- Yoni Nazarathy (*University of Queensland*, critically loaded queues, fluid and diffusion approximations, bandit problems),
- Ilkka Norros (*VTT*, sample-path large deviations, Gaussian processes),
- Zbigniew Palmowski (*Wrocław University of Technology*, Lévy processes),
- Guodong Pang (*Pennsylvania State University*, scaling limits),
- Rudesindo Núñez-Queija (*University of Amsterdam*, network economics, resource allocation, road traffic modeling),
- Aiko Pras (*University of Twente*, network measurements),
- Josh Reed (*New York University*, reflected autoregressive processes),
- Ad Ridder (*Vrije Universiteit Amsterdam*, large deviations techniques, fast simulation),
- Tomasz Rolski (*University of Wrocław*, Lévy processes),
- Iraj Saniee (*Bell Labs*, traffic management, network economics),
- Werner Scheinhardt (*University of Twente*, Markov fluid models, feedback),
- Peter Spreij (*University of Amsterdam*, stochastic processes, financial mathematics, large deviations),
- Aleksandr Stolyar (*University of Illinois at Urbana-Champaign*, traffic management, queuing),
- Peter Taylor (*University of Melbourne*, Markov modulated models),
- Anwar Walid (*Bell Labs*, Markov fluid models, energy efficient engineering, speed scaling),
- Alan Weiss (*MathWorks*, large deviations techniques),
- Ward Whitt (*Columbia University*, critically loaded queues),
- Bert Zwart (*CWI*, heavy tails, processor sharing, rare-event simulation).

## Scientific activities: supervision

- Ph.D. thesis supervisor of
  - (1) N.K. Boots (Vrije Universiteit Amsterdam — co-supervised with A.A.N. Ridder and H.C. Tijms; February 5, 2002 — title thesis: ‘Rare event simulation in models with heavy-tailed random variables’),
  - (2) N.D. van Foreest (University of Twente — co-supervised with W.R.W. Scheinhardt; December 17, 2004 — title thesis: ‘Queues with congestion-dependent feedback’),
  - (3) A.B. Dieker (CWI Amsterdam, with graduation at University of Amsterdam; March 9, 2006; *with honors* — title thesis: ‘Extremes and fluid queues’),

- (4) R. van de Meent (University of Twente — co-supervised with A. Pras and L.J.M. Nieuwenhuis; March 24, 2006 — title thesis: ‘Network link dimensioning: a measurement & modeling approach’),
- (5) P.M.D. Lieshout (CWI Amsterdam, with graduation at University of Amsterdam — co-supervised with S.C. Borst; September 5, 2008 — title thesis: ‘Queueing models for bandwidth-sharing disciplines’),
- (6) R. Malhotra (University of Twente and Alcatel-Lucent — co-supervised with J.L. van den Berg; October 31, 2008 — title thesis: ‘Quality-of-service modeling and analysis for Carrier Ethernet’),
- (7) F. Roijers (University of Amsterdam and TNO ICT — co-supervised with J.L. van den Berg; February 11, 2009 — title thesis: ‘Fluid models for QoS provisioning in communication networks’),
- (8) D.I. Miretskiy (University of Twente — co-supervised with W.R.W. Scheinhardt; November 12, 2009 — title thesis: ‘Queueing networks: rare events and fast simulations’),
- (9) A. Es-Saghouani (University of Amsterdam — November 17, 2009 — title thesis: ‘Analysis of dependence metrics for queueing processes’),
- (10) V.J.G. Leijdekker (University of Amsterdam and ABN-AMRO — co-supervised with P.J.C. Spreij; May 25, 2010 — title thesis: ‘Modeling credit risk and credit derivatives’),
- (11) P.W. Żuraniecki (University of Amsterdam — March 11, 2011 — title thesis: ‘Stochastic modelling and control of communication networks’),
- (12) J.D. Ivanovs (University of Amsterdam and EURANDOM, with graduation at University of Amsterdam — co-supervised with O.J. Boxma; September 6, 2011 — title thesis: ‘One-sided Markov additive processes and related exit problems’),
- (13) B.P.H. Kemper (University of Amsterdam and IBIS UvA BV — co-supervised with J. de Mast; November 17, 2011 — title thesis: ‘Process flow improvement in services and healthcare’),
- (14) M.R. Koot (University of Amsterdam — co-supervised with C.T.A.M. de Laat and G.J. van ’t Noordende; June 27, 2012 — title thesis: ‘Measuring and predicting anonymity’),
- (15) K.M. Kosiński (University of Amsterdam and EURANDOM, with graduation at Eindhoven University of Technology — co-supervised with O.J. Boxma; September 27, 2012; *with honors* — title thesis: ‘Gaussian and Lévy-driven queues’),
- (16) P.A.G.J.M. Gruntjes (University of Amsterdam — co-supervised with P.J.C. Spreij; September 27, 2013 — title thesis: ‘Essays on mathematical and computational finance, with a view towards applied probability’),
- (17) N.M. Asghari (University of Amsterdam — November 25, 2014 — title thesis: ‘Computational techniques in queueing and fluctuation theory’),
- (18) G. Huang (University of Amsterdam — co-supervised with P.J.C. Spreij; June 17, 2015 — title thesis: ‘Limit theorems for Markov-modulated and reflected diffusion processes’),
- (19) W. Ellens (University of Amsterdam and TNO ICT — co-supervised with J.L. van den Berg; December 10, 2015 — title thesis: ‘Stochastic methods for measurement-based network control’),
- (20) H. Thórsdóttir (CWI Amsterdam, with graduation at University of Amsterdam — co-supervised with J.G. Blom and U. Ayesta; May 13th, 2016 — title thesis: ‘Limit theorems for Markov-modulated queues’),
- (21) A. Kuiper (University of Amsterdam and IBIS UvA BV — co-supervised with J. de Mast; June 30th, 2016 — title thesis: ‘Appointment Scheduling in Healthcare’),
- (22) T.S. Akkerhuis (University of Amsterdam and IBIS UvA BV — co-supervised with J. de Mast; September 16, 2016 — title thesis: ‘Measurement system analysis for binary tests’),

- (23) M. Gharaei (University of Amsterdam — supervised by A.J. Homburg and J. Hulshof; May 19th, 2017 — title thesis: ‘Iterated function systems of interval maps’),
- (24) J. Kuhn (University of Amsterdam and University of Queensland, *joint doctorate* — co-supervised with T. Taimre; December 15th, 2017 — title thesis ‘Monitoring and control of stochastic systems’),
- (25) H.M. Jansen (University of Amsterdam and University of Ghent, *joint doctorate* — co-supervised with K. de Turck and S. Wittevrongel; March 2nd, 2018 — title thesis: ‘Scaling limits for infinite-server queues and related stochastic processes’),
- (26) E.J. Cahen (CWI Amsterdam, with graduation at Eindhoven University of Technology — co-supervised with A.P. Zwart; January 21st, 2019 — title thesis: ‘Rare-event simulation for multidimensional stochastic models’),
- (27) Abhishek (University of Amsterdam and Eindhoven University of Technology, with graduation at University of Amsterdam — co-supervised with R. Núñez-Queija, M.A.A. Boon, and O.J. Boxma; January 22nd, 2019 — tile thesis: ‘Stochastic models for unsignalized road traffic intersections’),
- (28) B.J. Patch (University of Amsterdam and University of Queensland, *joint doctorate* — co-supervised with N. Walton and T. Taimre — February 11th, 2019, title thesis: ‘Modelling complex stochastic systems: approaches to management and stability’),
- (29) D.T. Koops (University of Amsterdam and Eindhoven University of Technology, with graduation at University of Amsterdam — co-supervised with O.J. Boxma; February 22nd, 2019 — title thesis: ‘Stochastic systems with nonstandard input processes’),
- (30) N.J. Starreveld (University of Amsterdam — co-supervised with R. Bekker; February 28th, 2019 — title thesis: ‘Queues, random graphs, and queues on random graphs’),
- (31) K.L. Bisewski (CWI Amsterdam, with graduation at University of Amsterdam — co-supervised with D.T. Crommelin and J.H. van Zanten — October 15th, 2019, title thesis: ‘Rare event simulation and time discretization’),
- (32) J.M.A. Heemskerk (University of Amsterdam and Eindhoven University of Technology, with graduation at University of Amsterdam — co-supervised with J.S.H. van Leeuwen — October 23rd, 2020, title thesis: ‘Overdispersion in Service Systems’),
- (33) M. van Beek (University of Amsterdam and BlackRock — co-supervised with E.M.M. Winands and P.J.C. Spreij — November 3rd, 2020, title thesis: ‘Multidisciplinary essays on finance’),
- (34) M. de Kemp (University of Amsterdam — co-supervised with N.K. Olver — December 15th, 2020, title thesis: ‘Performance bounds in stochastic scheduling problems’),
- (35) P.J. Storm (Vrije Universiteit Amsterdam — co-supervised with S. Bhulai and W. Kager — February 2nd, 2021, title thesis: ‘Stochastic traffic flow models: Asymptotic analysis, stability and applications’),
- (o) V.R. Harmsen (University of Amsterdam and DeepBlue— supervised by R.G. de Vilder),
- (o) M. Derksen (University of Amsterdam and DeepBlue— supervised by B.J.K. Kleijn and R.G. de Vilder),
- (o) G.A. Delsing (University of Amsterdam and Rabobank — co-supervised with E.M.M. Winands and P.J.C. Spreij),
- (o) B. Sollie (Vrije Universiteit Amsterdam — co-supervised with M.C.M. de Gunst and B. Knapik),
- (o) Y.A. Peeters (University of Amsterdam — co-supervised with A.V. den Boer and M. Salomon),
- (o) H. Zhou (University of Amsterdam and TNO ICT — co-supervised with J.L. Dorsman, E. de Romph, and M. Snelder),
- (o) L. van Krevelde (University of Amsterdam — co-supervised with J.L. Dorsman and O.J. Boxma),

- (o) N.A.C. Levering (University of Amsterdam — co-supervised with R. Núñez-Queija and M.A.A. Boon),
  - (o) D. Chan (University of Amsterdam and Transtrend — co-supervised with R. Duivenvoorden),
  - (o) R.S. Karim (University of Amsterdam — co-supervised with R.J.A. Laeven),
  - (o) R.T. Kamphuis (University of Amsterdam — co-supervised with P. Serra),
  - (o) B. Meylahn (University of Amsterdam — co-supervised with A.V. den Boer),
  - (o) P. Dionigi (Leiden University — co-supervised with W.Th.F. den Hollander and D. Garlaschelli).
- M.Sc. thesis (co-)supervisor of
    - P. van der Stoel (1997 – KPN Research/Vrije Universiteit Amsterdam, with J.L. van den Berg);
    - M. van Uitert (1999 – KPN Research/University of Tilburg, with J.L. van den Berg);
    - T. Dieker (2002 – CWI/Vrije Universiteit Amsterdam);
    - J. Slegers (2002 – Worldcom/University of Twente);
    - R. de Jonge (2007 – University of Amsterdam);
    - S. Greeuw (2009 – Technical University of Denmark/University of Amsterdam);
    - E. Boezeman (2009 – Shell/University of Amsterdam, with P.J.C. Spreij);
    - B. Groot (2011 – University of Amsterdam);
    - M. Boersma (2011 – University of Amsterdam);
    - D. van Waarden (2012 – Mlcompany/University of Amsterdam);
    - A. Kuiper (2012 – IBIS/University of Amsterdam, with B.P.H. Kemper);
    - J. Kuhn (2013 – TNO/University of Amsterdam);
    - D. Broedersz (2014 – VUmc/University of Amsterdam);
    - N. Starreveld (2014 – University of Utrecht);
    - S. Błaszczuk (2014 – Vrije Universiteit Amsterdam, with W. Ellens);
    - V. Rensink (2015 – Vrije Universiteit Amsterdam, with W. Kager and S. Bhulai);
    - B. Sollie (2015 – Vrije Universiteit Amsterdam, with M.C.M. de Gunst and B. Knapik);
    - M. Heemskerk (2015 – University of Amsterdam, with J.S.H. van Leeuwen);
    - V. Gregor (2015 – NLR/Vrije Universiteit Amsterdam);
    - R. Brokkelkamp (2015 – IBIS/University of Amsterdam, with A. Kuiper);
    - E. Martini (2015 – University of Milan, with N.J. Starreveld);
    - M. de Kemp (2016 – Vrije Universiteit Amsterdam, with N.K. Olver – was awarded ASML Master Thesis prize in Mathematics, 2016);
    - A. Malsagov (2016 – University of Amsterdam);
    - Y. Peeters (2017 – University of Amsterdam, with A.V. den Boer);
    - A. Cichocka (2018 – Vrije Universiteit Amsterdam);
    - W. Berkelmans (2018 – Vrije Universiteit Amsterdam);
    - L. van Vianen (2018 – University of Amsterdam);
    - B. Karuza (2018 – University of Amsterdam);
    - N. Levering (2019 – University of Amsterdam, with B. Patch and K. Hock);
    - R. Mahes (2020 – University of Amsterdam);
    - D. Nieman (2020 – University of Amsterdam, with L. Ravner);
    - B. Haver (2020 – University of Amsterdam, with S. Hautphenne).
  - Involved in postdoc mentoring of

- P. Lassila (2001 – University of Twente),
  - P. Mannersalo (2004 – CWI),
  - U. Ayesta (2005 – CWI),
  - L. Leskelä (2006 – CWI),
  - E. Tzenova (2006 – EURANDOM),
  - Y. Nazarathy (2009 – EURANDOM),
  - H. Leahu (2015 – University of Amsterdam),
  - J. Carstens (2016 – University of Amsterdam),
  - P. Serra (2016 – University of Amsterdam),
  - M. Frolkova (2016 – University of Amsterdam),
  - L. Ravner (2017 – University of Amsterdam/Eindhoven University of Technology),
  - M. Zubeldía (2019 – University of Amsterdam/Eindhoven University of Technology),
  - P. Braunsteins (2020 – University of Amsterdam/Leiden University).
- Ph.D. thesis committee member of
    - P.-T. de Boer (University of Twente; supervisors: I. Niemegeers and V.F. Nicola),
    - Q. Deng (Eindhoven University of Technology; supervisor: O.J. Boxma),
    - P. Lassila (Helsinki University of Technology; supervisor: J. Virtamo),
    - R. Litjens, M.Sc. (University of Twente; supervisors: W.H.M. Zijm and R.J. Boucherie),
    - M.F.M. Nuijens (Universiteit van Amsterdam; supervisors: M.S. Keane and A.A. Balkema),
    - H. Gautama (Technical University Delft; supervisors: A. van Gemund and H. Sips),
    - R. Groenevelt (Université de Nice/Sophia Antipolis; supervisor: P. Nain),
    - T.J.J. Denteneer (Eindhoven University of Technology; supervisor: O.J. Boxma),
    - R. Bekker (Eindhoven University of Technology; supervisors: O.J. Boxma and S.C. Borst),
    - L. Leskelä (Helsinki University of Technology; supervisors: I. Norros and E. Valkeila),
    - M.B. Vermaat (University of Amsterdam; supervisor: R.J.M.M. Does),
    - P. Mokveld (University of Amsterdam; supervisor: C. Klaassen),
    - H. de Koning (University of Amsterdam; supervisor: R.J.M.M. Does),
    - P. Zareba (Vrije Universiteit Amsterdam; supervisors: A.W. van der Vaart, K.O. Dzhaparidze, and J.H. van Zanten),
    - T. Zaburnenko (University of Twente; supervisors: B.R.H.M. Haverkort and P.-T. de Boer),
    - S. Gugushvili (University of Amsterdam; supervisors: C.A.J. Klaassen, P.J.C. Spreij, and A.J. van Es),
    - M. Riaz (University of Amsterdam; supervisor: R.J.M.M. Does),
    - R. Haijema (University of Amsterdam; supervisors: N.M. van Dijk and J. van der Wal),
    - R. Egorova (Eindhoven University of Technology; supervisors: A.P. Zwart and S.C. Borst),
    - W. van der Weij (Vrije Universiteit Amsterdam; supervisor: R.D. van der Mei),
    - N.S. Walton (University of Cambridge; supervisor F.P. Kelly),
    - K. Avrachenkov (*habilitation*; Université de Nice/Sophia Antipolis),
    - A. Sperotto (University of Twente; supervisors: B.R.H.M. Haverkort and A. Pras),
    - M. Dobrzyński (University of Amsterdam; supervisors: J. Verwer and H. Westerhof),
    - B. Kauffmann (ENS Paris; supervisor: F. Baccelli),

- A. Marynych (University of Utrecht; supervisor: A. Gnedin),
- E. Veerman (University of Amsterdam; supervisors: C.A.J. Klaassen and P.J.C. Spreij),
- B. Kaynar (Vrije Universiteit Amsterdam; supervisors: A.A.N Ridder and H.C. Tijms),
- M. Harkema (University of Twente; supervisors: L.J.M. Nieuwenhuis and R.D. van der Mei),
- J. Bajars (University of Amsterdam; supervisor: J. Frank),
- F. Mata (Universidad Autónoma de Madrid; supervisor: J. Aracil),
- T.P. Erdmann (University of Amsterdam; supervisor: J. de Mast),
- A. De Larrard (Université Paris VI; supervisor: R. Cont),
- D. Reijsbergen (University of Twente; supervisors: R.J. Boucherie, B.R. Haverkort, P.-T. de Boer, and W.R.W. Scheinhardt),
- W. Volk-Makarewicz (Vrije Universiteit Amsterdam; supervisor: B. Heidergott)
- P. den Iseger (Erasmus Universiteit Rotterdam; supervisor: R. Dekker),
- M. Frolkova (Vrije Universiteit Amsterdam; supervisors: A.P. Zwart and S. Foss),
- J. Bosman (Vrije Universiteit Amsterdam; supervisors: R.D. van der Mei and R. Núñez-Queija),
- H.Z. Nazir (University of Amsterdam; supervisor: R.J.M.M. Does),
- E. De Cuypere (University of Ghent; supervisors: D. Fiems and K. de Turck),
- M. Ruijter (Technical University Delft; supervisor: C. Oosterlee),
- S. Badila (Eindhoven University of Technology; supervisors: O.J. Boxma and J.A.C. Resing),
- W. Wadman (University of Amsterdam; supervisors: D.T. Crommelin and J.E. Frank),
- A. Zocca (Eindhoven University of Technology; supervisors: S.C. Borst and J.S.H. van Leeuwen),
- I. Zwetsloot (University of Amsterdam; supervisors: R.J.M.M. Does and M. Schoonhoven),
- P. Kovács (University of Amsterdam; supervisors: R. Núñez-Queija and N.S. Walton),
- J. de Zoete (University of Amsterdam; supervisors: M.J. Sjerps and R.W.J. Meester),
- N. Susyanto (University of Amsterdam; supervisors: C.A.J. Klaassen, R.N.J. Veldhuis and L.J. Spreeuwiers),
- C. de Graaf (University of Amsterdam; supervisors: P.M.A. Sloot and D. Kandhai),
- P. Vis (Vrije Universiteit Amsterdam; supervisors: R.D. van der Mei and R. Bekker),
- A. Kirichenko (University of Amsterdam; supervisor: J.H. van Zanten),
- D. Bhaumik (University of Amsterdam; supervisors: D.T. Crommelin and A.P. Zwart),
- R. Goedhart (University of Amsterdam; supervisor: R.J.M.M. Does),
- J. Dean (University of Bristol; supervisor: A. Ganesh),
- A. Roccaverde (Leiden University; supervisor: W.Th.F. den Hollander),
- D. van Leeuwen (Vrije Universiteit Amsterdam; supervisors: R.D. van der Mei, R. Núñez-Queija, and S. Bhulai),
- M. Diko (University of Amsterdam; supervisor: R.J.M.M. Does),
- C. Comte (Télécom-Paristech; supervisors T. Bonald and F. Mathieu),
- J. Hartog (University of Amsterdam; supervisor: J.H. van Zanten),
- A. Buijsrogge (University of Twente; supervisors: R.J. Boucherie, B.R. Haverkort, P.-T. de Boer, and W.R.W. Scheinhardt),



- B. Chan (Eindhoven University of Technology; supervisors: A.P. Zwart and C.-H. Rhee),
- M. Saxena (Eindhoven University of Technology; supervisors: O. Boxma, R. Núñez-Queija, and S. Kapodistria),
- C. Wichelhaus (*habilitation*; Universität Darmstadt),
- V. Schamboeck (University of Amsterdam; supervisors: P. Iedema and I. Kryven),
- I. Anagnostou (University of Amsterdam; supervisors: D. Kandhai and A. Hoekstra),
- M. Sfragara (Leiden University; supervisors: W.Th.F. den Hollander and S.C. Borst).

## Teaching

In possession of diploma BKO (in Dutch: ‘basis kwalificatie onderwijs’; ~ ‘university teaching qualification’), as of March 2015.

I taught (or contributed to) the following courses:

- 1993–1996: *Quantitative Methods*, for bachelor students in economics (Vrije Universiteit Amsterdam);
- 2001–2013: *Stochastic Models for Telecommunication Systems*, for master students in mathematics and PhD students in mathematics and/or operations research (University of Twente, LNMB – Dutch Network for the Mathematics of Operations Research);
- 2004–2011: *Markov Chains* (in Dutch the course is called *Kansrekening*), for bachelor students in mathematics (University of Amsterdam);
- 2009: *Mathematical Methods*, for bachelor students bèta-gamma (University of Amsterdam);
- 2006–2013: *Stochastics I* (elementary probability theory), for bachelor students in mathematics (University of Amsterdam);
- 2011–present: *Lévy Fluctuation Theory, with applications in finance and OR*, for master students in mathematics (University of Amsterdam; in 2015–2016 *nationwide* through MasterMath);
- 2011: *Stochastic Integration*, for master students in mathematics (University of Amsterdam);
- 2012–2013, 2018–present: *Topics in Stochastic Networks*, for master students in mathematics (University of Amsterdam);
- 2013–2018: *Operations & Process Management*, for bachelor students in business economics (University of Amsterdam);
- 2017–present: *Stochastic Simulation*, for master students in mathematics;
- 2020–2021: *Complex Networks*, for master students in mathematics, *nationwide* through MasterMath.

## Miscellaneous international scientific activities

- Author of book ‘Large Deviations for Gaussian Queues’ (Wiley, 2007).
- Author of book ‘Lévy-driven Queues and Fluctuation Theory’, with K. Debicki (Springer, 2015).
- Associate editor of the journals *Stochastic Models*, *Queueing Systems*, *Stochastic Systems*, the *Applied Probability Trust* journals (i.e., *Journal of Applied Probability* and *Advances in Applied Probability*), and *Indagationes Mathematicae*.
- Guest editor of special issues of *Queueing Systems* (one with J. Blanchet, one with Z. Palmowski and S. Shneer, and one with P. Robert), *Annals of Operations Research* (with R. van der Mei and R. Núñez-Queija), and *Journal of Statistical Physics* (with F. den Hollander, D. Garlaschelli, and R. van der Hofstad).

- Program Committee Chair (with O.J. Boxma) of the INFORMS Applied Probability conference (Eindhoven, the Netherlands, 2007).  
Program Committee Chair (with S.C. Borst and M. Squillante) of the ITC (International Teletraffic Congress) 22 conference (Amsterdam, the Netherlands, 2010).  
Program Committee Chair (with O.J. Boxma and A.P. Zwart) of Stochastic Networks 2014 (Amsterdam, the Netherlands, 2014).  
Program Committee Chair (with J.S. Liu and D. Mitra) of Performance 2018 (Toulouse, France, 2018).  
Organizer (with S. Foss, G. Last, and B. Prabhakar) of workshop at Oberwolfach on Stochastic Networks (Oberwolfach, Germany, 2010).  
Organizer (with A.A.N. Ridder) of workshop RESIM 2014 on rare event simulation (Amsterdam, the Netherlands, 2014).  
Organizer (with A. Muntean, P.T. de Boer, and D.T. Crommelin) of workshop RESIM 2016 on rare event simulation (Eindhoven, the Netherlands, 2016).  
Organizer and Program Committee Chair (with W.Th.F. den Hollander) of conference NETWORKS 2017 (Amsterdam, the Netherlands, 2017).
- Member of the Technical Programme Committee of ITC 17 (Salvador de Bahia, Brazil, 2001), 18 (Berlin, Germany, 2003), 19 (Beijing, China, 2005), 20 (Ottawa, Canada, 2007), 21 (Paris, France, 2009), and 23 (San Francisco, USA, 2011).  
Organizer of a session on Gaussian queues at INFORMS Applied Probability (Ottawa, Canada, 2005), a session on Lévy-driven queues at INFORMS Applied Probability (Stockholm, Sweden, 2011), a session on scaling limits for infinite-server queues (Evanston, USA, 2017), and a session on inverse problems for queues (Brisbane, Australia, 2019). Member of the Technical Programme Committee of INFORMS Applied Probability (Stockholm, Sweden, 2011; San Jose, Costa Rica, 2013).  
Member of the Technical Programme Committee of ACM Sigmetrics/Performance (St. Malo, France, 2006), ACM Sigmetrics (New York, USA, 2010), and IFIP Performance (Namur, Belgium, 2010; Amsterdam, the Netherlands, 2011; Vienna, Austria, 2013; Torino, Italy, 2014; Sidney, Australia, 2015; New York, USA, 2017; Milan, Italy, 2020).  
Member of the Technical Programme Committee of ValueTools (Pisa, Italy, 2006; Tsukuba, Japan, 2020).  
Member of the Technical Programme Committee of the European Meeting of Statisticians (EMS; Oslo, Norway, 2005); organizer of a special session on Applied Probability and Queues.  
Member of the Technical Programme Committee of ITCOM, Conference on Internet Performance and Control (Orlando, FL, USA, 2001-2004).  
Member of the Technical Programme Committee of ITC Specialist Seminars (Antwerp, Belgium, 2004; Berlin, Germany, 2008).  
Member of the Technical Programme Committee of the 1st EURO-NGI Conference (Rome, Italy, 2005), the 2nd EURO-NGI Conference (Valencia, Spain, 2006), and the 3rd EURO-NGI Conference (Trondheim, Norway, 2007).  
Member of the Technical Programme Committee of NET-COOP 2007 (Avignon, France, 2007), NET-COOP 2009 (Eindhoven, the Netherlands, 2009), NET-COOP 2010 (Ghent, Belgium, 2010), and NET-GCOOP 2011 (Paris, France, 2011).  
Member of the Technical Programme Committee of RESIM 2008 (Rennes, France, 2008).  
Member of the Technical Programme Committee of International Workshop on Computational Stochastics, part of the International Conference on Computational Science (Amsterdam, the Netherlands, 2010).  
Member of the Technical Programme Committee of ACM Sigmetrics Workshop on Mathematical performance Modeling and Analysis (MAMA 2007–2020).  
Member of the Programme Committee of Stochastic Networks 2012 (Boston, MA, United States, 2012).  
Member of the Technical Programme Committee of the workshop on Stochastic Networks (Będlewo, Poland, 2018).

- Leader of Work Package 5.2 (jointly with O.J. Boxma) Network of Excellence EURO-NGI: 2003–2006.  
Leader of Work Package 5 Network of Excellence EURO-NGI: 2005–2006.
- Organizer of the workshop ‘Rare events in communication networks’ (jointly with O.J. Boxma), within the framework of EURO-NGI. Eindhoven, the Netherlands, 2005.  
Organizer of the 2nd Korean-Dutch workshop on queueing and its applications in telecommunications (jointly with H.C. Tijms). Amsterdam, the Netherlands, 2006.  
Organizer of the workshop ‘Stochastic performance models for resource allocation in communication systems’ (jointly with R.D. van der Mei and R. Núñez-Queija), within the framework of EURO-NGI. Amsterdam, the Netherlands, 2006.  
Organizer ‘Back to school’-day on the operations-research aspects of networks (jointly with G. Brandt), LNMB-NGB, Lunteren, the Netherlands, 2016.
- Advisor EURANDOM, Eindhoven, the Netherlands; theme Queueing and Performance Evaluation; 2004–present.
- Coordinator of theme ‘Stochastic Networks’, NWO Mathematics cluster STAR; 2007–2013.
- Guest Researcher CWI (PNA2, Stochastics); 2006–present.
- Referee for ACM Transactions on Modeling and Computer Simulation, Advances in Applied Probability, Annals of Applied Probability, Annals of Operations Research, Computer Networks, IEEE Infocom, IEEE/ACM Transactions on Networking, IEEE Communications Letters, Journal of Applied Probability, Mathematical Methods of Operations Research, Mathematics of Operations Research, Operations Research, Methodology and Computing in Applied Probability, Performance Evaluation, Probability in the Engineering and Informational Sciences, Queueing Systems, Stochastic Models, Stochastic Systems, Telecommunication Systems.

## Miscellaneous national scientific activities

- Member project steering committee EQUANET (funded by Dutch Ministry of Economic Affairs through its agency SENTER/Novem; partners: CWI, Lucent Technologies, TNO Telecom, TU/e, UT; 2002–2005).
- Member Evaluation Committee VIDI awards, Netherlands Organization for Scientific Research NWO (2005, 2006, 2007).
- Member Evaluation Committee VICI awards, Netherlands Organization for Scientific Research NWO (2011, 2017).
- Member board Stieltjes Institute (representing CWI), and project leader Stieltjes programme 4.2 *Stochastic Operations Research* (jointly with G.M. Koole): 2004–2006.
- Member advisory group *Voorverkenning ICT*, Royal Dutch Academy of Sciences KNAW (2004).
- ‘Commissaris’ (member of the supervisory board) of IBIS UvA BV: 2007–2009.
- Member ‘Commissie Onderzoek’, Platform Wiskunde Nederland: 2010–2014, and again as of 2017.
- Member of Scientific Advisory Council, faculty of Mathematics and Computer Science, Eindhoven University of Technology (as of 2014).
- Guest editor special issue *Nieuw Archief voor Wiskunde* on networks (jointly with J.S.H. van Leeuwen).
- ‘Associate’ of Institute for Advanced Study, University of Amsterdam: 2017–present.
- Organizer theme evenings for broad audience at KNAW (2014, 2018; jointly with W.Th.F. den Hollander).
- ‘Kinderlezing’ (public lecture for children) at Science Museum NEMO (2008, 2009, 2012, 2018).

## Grants, projects, and awards

- 1994: Master thesis *Large deviations: theoretical results and queueing applications*, written under supervision of H.C. Tijms, A.A.N. Ridder, and P.J. Holeyijn, was awarded the Dutch Operations Research Prize (NGB – Netherlands Operations Research Association), and runner up in the VVS competition (VVS – Dutch Association for Statistics);
- 1999: Marcel F. Neuts award for the paper ‘Rare event analysis of the state frequencies of a large number of Markov chains’, for the best paper in the journal *Stochastic Models* in 1999.
- 2001: Burgen Scholarship of Academia Europaea.
- 2002: nomination for best-paper award Infocom 2002 for the paper ‘Generalized Processor Sharing queues with heterogeneous traffic classes’, coauthored by S. Borst and M. van Uitert.
- 2013: Grant from University of Amsterdam to visit New York University during the academic year 2013–2014.
- 2012–2016: Australian Research Council (ARC) Discovery Grant (with L. Andrew, S. Low, Y. Nazarathy, and H. Vu).
- 2018–2020: Australian Research Council (ARC) Discovery Grant (with V. Borkar, J. Filar, Y. Nazarathy, and T. Taimre).
- NWO (Netherlands Organization for Scientific Research):
  - 2001: EQUIP (CWI; two PhD students, with V.F. Nicola); rare-event simulation.
  - 2005: LOGICA (UvA; one PhD student, with P.J.C. Spreij); Gaussian queues.
  - 2006: QNIS (CWI; one post-doc, with R.J. Boucherie, O.J. Boxma, R.D. van der Mei); Queueing Networks of Interacting Servers.
  - 2008: SQALP (UvA/EURANDOM; one PhD student, with O.J. Boxma); Lévy-driven queues.
  - 2010: STAR (CWI/TUE/UvA/UL/VU; two-year funding for two assistant professors at UvA; two-year funding for a PhD student). Travel grants for K. Dębicki, O. Kella, P. Glynn, S. Juneja, J. Blanchet, Y. Nazarathy, G. Weiss, A. Proutière.
  - 2013: 2QR (UvA/CWI/TUE: two PhD students, with O.J. Boxma, R. Núñez-Queija, A.P. Zwart): multidimensional queueing and risk problems.
  - 2014: Mathematics for Planet Earth (UvA/CWI: one PhD student, with D. Crommelin and J.H. van Zanten): rare-event simulation.
- 2014–2024: NWO *Gravitation* Programme. Project ‘NETWORKS’, consortium of UvA with CWI, UL, and TUE.

Mandjes acting as the main applicant and project leader; other applicants M.T. de Berg, S.C. Borst, O.J. Boxma, H.M. Buhrman, R.W. van der Hofstad, W.Th.F. den Hollander, A.M.J. Koonen, J.S.H. van Leeuwen, A. Schrijver, G.J. Woeginger (who have become the programme’s PIs). In 2017 N. Bansal succeeded G.J. Woeginger as a PI; in 2019 L. Stougie succeeded A. Schrijver as a PI; in 2019 F. Spieksma succeeded N. Bansal as a PI. Consists of 7 tenure-track positions, 25 postdoc positions, 40 PhD students; total grant is M€ 23 (M€ 29 with matching).
- SENTER/Novem (Dutch Ministry of Economic Affairs), Agentschap NL:
  - 2003: EQUANET (CWI; with Lucent Technologies, TNO ICT, University of Twente, Eindhoven University of Technology); end-to-end QoS in IP networks.
  - 2011–2012: CAD (UvA; with TNO and UT); anomaly detection.
- ICES-KIS:
  - 2004: BRICKS (CWI; with several partners from industry and academia); resource allocation, processor sharing, fluid queues.

- Telematica Instituut:
  - 2002: M2C-QoS (CWI; with R. van de Meent and A. Pras); traffic measurements, provisioning.
- Industry:
  - 2001: consultancy project at UUNET/WorldCom (CWI; provisioning IP links).
  - 2005–2010: Ph.D. project V.J.G. Leijdekker at ABN AMRO (UvA; with P.J.C. Spreij).
  - 2005–2008: Ph.D. project R. Malhotra at Lucent Technologies (UT; with J.L. van den Berg — supported by an NWO-Casimir grant).
  - 2006: consultancy project at EMC (UvA; with P.M.D. Lieshout).
  - 2007–2009: Ph.D. project F. Roijers at TNO ICT (UvA; with J.L. van den Berg).
  - 2010–2013: consultancy project at SURFnet (UvA; with P. Żuraniewski and A. den Boer).
  - 2012–2015: Ph.D. project W. Ellens at TNO ICT (UvA; with J.L. van den Berg).
  - 2013–2019: Ph.D. project M. van Beek at Rabobank & BlackRock (UvA; with E.M.M. Winands and P.J.C. Spreij).
  - 2016–2021: Ph.D. project G. Delsing at Rabobank (UvA; with E.M.M. Winands and P.J.C. Spreij).
  - 2016–2021: Ph.D. project J. He at ABN AMRO (UvA; with A. Khedher and P.J.C. Spreij).
  - 2018–2021: Ph.D. project H. Zhou at TNO (UvA; with J.L. Dorsman).
  - 2019–2024: Ph.D. project D. Chan at Transtrend (UvA).
- Europe:
  - 2008–2011: COST TMA. Short-Term Scientific Mission P. Żuraniewski (2009). Short-Term Scientific Mission F. Mata (2010).
  - 2020–2024: NETWORKS-COFUND. M.T. de Berg acting as the main applicant and project leader; other applicants M. Mandjes, S.C. Borst, R.W. van der Hofstad, W.Th.F. den Hollander, L. Stougie.  
Consists of 7 PhD students; total grant is M€1.5.

### **(Long-term) visits**

- 2002: INRIA-Rocquencourt, France (Ph. Robert);
- 2002: Microsoft Research, Cambridge, UK (P. Key, L. Massoulié);
- 2002: VTT, Espoo, Finland (I. Norros, P. Mannersalo);
- 2003, 2007, 2009, 2019: University of Wrocław, Poland (K. Dębicki, T. Rolski);
- 2004: invited guest at the special program on Applied Probability and Performance Evaluation at the Mittag-Leffler Institute, Djursholm, Sweden (I. Kaj);
- 2006: University of Melbourne, Australia (P. Taylor);
- 2007: Universiteit van Stellenbosch, South Africa (A.E. Krzesinski);
- 2008: *sabbatical* at Stanford University, US (P. Glynn, B. Prabhakar);
- 2009: Stanford University, US (P. Glynn, N. Bambos);
- 2010: invited guest at the special program on Stochastic Networks at the Newton Institute, University of Cambridge, UK (S. Foss *et al.*);
- 2011, 2018: Tata Institute for Fundamental Research, Mumbai, India (S. Juneja);
- 2011: Columbia University, US (J. Blanchet);
- 2012, 2015: Hebrew University, Jerusalem, Israel (O. Kella);

- 2013: Swinburne University/University of Melbourne/University of Queensland, Australia (L. Andrew, Y. Nazarathy, P. Taylor);
- 2013–2017: New York University, US (M. Armony, M. Pinedo, J. Reed);
- 2014: University of Lausanne, Switzerland (J. Ivanovs, H. Albrecher);
- 2015: University of Queensland/University of Melbourne/Swinburne University, Australia (T. Taimre, Y. Nazarathy, P. Taylor, H. Vu);
- 2017: Columbia University, US (A. Zeevi);
- 2017: University of Melbourne, Australia (P. Taylor);
- 2018: University of Bristol (A. Ganesh);
- 2018, 2020: University of Liverpool (C. Constantinescu, L. Rojas-Nandayapa);
- 2019: Hebrew University/University of Haifa, Israel (O. Kella, A. Goldenshluger);
- 2019: University of Queensland/University of Melbourne, Australia (T. Taimre, J. Filar, M. Jansen, S. Moka, P. Taylor, S. Hautphenne).

### Invited talks

- 1997: Invited talk Workshop on Stochastic Networks, Cambridge, UK (“Optimal trajectory to overflow in a queue fed by a large number of sources”; organizers: R. Gibbens and F. Kelly)
- 1998: Invited talk INRIA Queueing Seminar (projet MISTRAL), Sophia-Antipolis, France (“Optimal trajectory to overflow in a queue fed by a large number of sources”; organizer: Ph. Nain)
- 1998: Invited lecture Nederlands Wiskundig Congres, Enschede, the Netherlands (“Connection Admission Control for integrated real-time and non-real-time traffic in ATM networks”)
- 1999: Plenary talk ITC (International Teletraffic Congress) 16, Edinburgh, UK (“Aspects of pricing in an integrated services network”)
- 1999: Invited talk Workshop on Internet Quality Economics, MIT, Cambridge, MA, USA (“Pricing of Variable Bit Rate services based on trace-based leaky bucket parameter estimation”; organizer: J. Bailey)
- 2000: Invited talk Workshop on Stochastic Networks, Cambridge, UK (“An analysis of the phase transition phenomenon in packet networks”; organizers: R.J. Gibbens and F.P. Kelly)
- 2001: Invited talk on Stochastic Networks at the Conference on Stochastic Processes and their Applications (Bernoulli Society), 27, Cambridge, UK (“An analysis of the phase transition phenomenon in packet networks”; organizers: J. Norris, F.P. Kelly *et al.*)
- 2002: Invited talk Microsoft Research, seminar on networking, Cambridge, UK (“Models for TCP performance analysis”; organizer: P. Key)
- 2002: Invited talk INRIA Queueing Seminar (projet RAP), Rocquencourt, France (“Feedback fluid queues”; organizer: Ph. Robert)
- 2002: Invited talk LMS/ICMS meeting on Modern Problems in Applied Probability, Edinburgh, UK (“Traffic with an FBM limit: convergence of the workload process”; organizers: S. Foss and S. Zachary)
- 2003: Invited talk Benelux workshop on Performance Analysis of Communication Systems, Eindhoven, the Netherlands (“Queues with Gaussian inputs: modeling of traffic correlations, quality of service, and network design”; organizers: C. Blondia, S. Borst, and O. Boxma)
- 2003: Invited talk Meeting on Applied Probability and Advanced Communication Networks, Bedlewo, Poland (“Sample-path large deviations for tandem and priority queues with many Gaussian inputs”; organizers: T. Rolski and R. Szekli)

- 2004: Invited talk Workshop on Quantitative Models for Production and Communication Networks, Eindhoven, the Netherlands (“Large Deviations of Sojourn Times in PS Queues”; organizers: T. de Kok and O. Boxma)
- 2004: Invited talk Workshop “A Mathematical Perspective on Queueing and Teletraffic Modeling”, Institut Mittag-Leffler, the Royal Swedish Academy of Sciences, Djursholm, Sweden (“Processor sharing queues with light-tailed input”; organizer: I. Kaj)
- 2005: Invited talk Conference European Meeting of Statisticians (EMS 2005), Oslo, Norway (“Large deviations of infinite intersections”; organizers: A. van der Vaart *et al.*)
- 2006: Invited talk Postgraduate Workshop on Stochastic Processes, Melbourne, Australia (“Large deviations of Gaussian queues”; organizers: A. Motyer *et al.*)
- 2006: Invited talk Workshop “New Directions in Applied Probability: Stochastic Networks and beyond”, Edinburgh, UK (“A fluid system with coupled input and output, and its application to bottlenecks in ad hoc networks”; organizers: S. Foss, T. Konstantopoulos, and S. Zachary)
- 2007: Invited talk Workshop on Rare Event Simulation, Nice, France (“Reflected fractional Brownian motion: Fast simulation, convergence to stationarity, and correlation structure”; organizers: B. Tuffin and G. Rubino)
- 2007: Invited talk Meeting on Stochastic Networks, Będlewo, Poland (“Reflected fractional Brownian motion: convergence to stationarity and correlation structure”; organizers: T. Rolski, Z. Palmowski, K. Dębicki, and R. Szekli)
- 2007: Key note London Mathematical Society; Workshop on Mathematical Foundations for the Internet, London, UK (“Gaussian models for the Internet”; organizers: R. Gibbens and P. Key)
- 2008: Invited talk ICME seminar, Stanford, US (“Convergence to stationarity of reflected fractional Brownian motion”; organizer: P. Glynn)
- 2008: Invited talk OR seminar, Stanford, US (“Convergence to stationarity of reflected fractional Brownian motion”; organizer: R. Johari)
- 2008: Invited talk Stochastic Networks 2008, Paris, France (“Convergence to stationarity of reflected fractional Brownian motion”; organizers: F. Baccelli and J. Mairesse)
- 2008: Invited talk OR seminar, Stanford, US (“Transient analysis of reflected Lévy processes”; organizer: R. Johari)
- 2008: Invited talk networking/communications/signal processing seminar, Berkeley, US (“Research dimensioning through buffer sampling”; organizer: V. Anantharam)
- 2008: Invited talk workshop on Stochastic Networks, University of Wrocław (“Transient analysis of reflected Lévy processes”; organizers: K. Dębicki, Z. Palmowski, R. Szekli, T. Rolski)
- 2008: Key note workshop Young European Queueing Theorists, Eindhoven, the Netherlands (“Transient analysis of reflected Lévy processes”; organizers: M. Jonkheere, M. Lelarge, and S. Shneer)
- 2009: Invited talk Meeting on Stochastic Networks, Będlewo, Poland (“On the correlation function of reflected Lévy processes”; organizers: T. Rolski, Z. Palmowski, K. Dębicki, and R. Szekli)
- 2009: Invited talk Cisco Research, San Jose, USA (“Research dimensioning through buffer sampling”; organizer: A. Clemm)
- 2009: Invited talk mathematical seminar, University of Clausthal, Germany (“On the correlation function of reflected Lévy processes”; organizer: W. Sandmann)
- 2009: Key note TMA workshop, Aachen, Germany (“Traffic models, and their use in provisioning and traffic management”; organizers: M. Papadopoulou, P. Owezarski, and A. Pras)

- 2009: Invited talk Bristol Maths department, University of Bristol, UK (“On the correlation function of reflected Lévy processes”; organizers: J. Cruise and A. Ganesh)
- 2010: Invited talk Newton Institute, Cambridge, UK (“Simulation-based computation of the correlation function of reflected Lévy processes”; organizer: S. Foss)
- 2010: Invited talk Nederlands Wiskundig Congres, Utrecht, the Netherlands (“On the correlation function of reflected Lévy processes”; organizer: A. Gnedin)
- 2010: Invited talk Israeli-Dutch workshop on queueing, Eindhoven, the Netherlands (“Appointment scheduling”; organizers: I. Adan, O. Boxma, and G.-J. van Houtum)
- 2010: Invited mini-course Fields-MITACS workshop on approximations, asymptotics and resource management for stochastic networks, Ottawa, Canada (“Lévy-driven queues”; organizers: M. Huang and Y. Zhao)
- 2010: Invited talk workshop on rare event simulation RESIM 2010, Cambridge, UK (“Simulation-based computation of the correlation function of reflected Lévy processes”; organizers: P. Glynn *et al.*)
- 2011: Invited talk seminar Tata Institute for Fundamental Research, Mumbai, India (“Simulation-based computation of the correlation function of reflected Lévy processes”; organizer: S. Juneja)
- 2011: Invited talk seminar Indian Institute of Technology — Perwez Shahabuddin Memorial Lecture (“New trends in rare-event simulation”; organizers: S. Juneja and K. Seth)
- 2011: Invited talk Meeting on Stochastic Networks, Będlewo, Poland (“Generalized birthday problems”; organizers: T. Rolski, Z. Palmowski, K. Dębicki, and R. Szekli)
- 2011: Invited talk workshop on the occasion of F. Kelly’s honorary doctorate, Eindhoven University of Technology (“Generalized birthday problems”; organizers: S. Borst and O. Boxma)
- 2011: Invited talk Heriot-Watt University, Edinburgh, UK (“Generalized birthday problems”; organizer: S. Foss)
- 2011: Invited talk INRIA, Paris, France (“Research dimensioning through buffer sampling”; organizer: F. Baccelli)
- 2011: Invited talk INRIA, Paris, France (“Generalized birthday problems”; organizer: F. Baccelli)
- 2012: Invited talk Stochastic Networks 2012, Boston, USA (“Transient analysis of Lévy-driven queues”; organizers: J. Tsitsiklis, D. Shah, and D. Gamarnik)
- 2012: Invited talk ‘Academia meets Industry’, Eindhoven, the Netherlands (“Optimized appointment scheduling”; organizer: O. Boxma)
- 2013: Invited talk Swinburne University, Melbourne, Australia (“Reflected and Markov-modulated Lévy processes”; organizer: L. Andrew)
- 2013: Invited talk University of Queensland, Brisbane, Australia (“Reflected and Markov-modulated Lévy processes”; organizer: Y. Nazarathy)
- 2013: Invited talk workshop on large deviations in finance, Imperial College, London (“Reflected and Markov-modulated Lévy processes”; organizers: M. Davis, N. Pham, and A. Jacquier)
- 2013: Invited talk workshop ‘Modern probabilistic techniques for design and analysis of stochastic systems and networks’, Cambridge, UK (“Time scaling results for Markov-modulated infinite-server systems and OU processes”; organizers: V. Anantharam, F. Baccelli, S. Foss, and P. Glynn)
- 2014: Invited talk seminar Business Analytics, Vrije Universiteit, Amsterdam, the Netherlands (“Optimized appointment scheduling”; organizer: G. Koole)
- 2014: Invited talk math seminar, IBM Yorktown Heights, US (“Time scaling results for Markov-modulated infinite-server systems and OU processes”; organizers: M. Squillante and B. Zhang)



- 2014: Opening address “NETWORKS”, Amsterdam, the Netherlands
- 2014: Key note European Conference on Queueing Theory, Ghent, Belgium (“Time scaling results for Markov-modulated infinite-server systems and OU processes”; organizers: S. Wittewrongel, H. Bruneel, O. Boxma, and J. Walraevens)
- 2014: Invited talk University of Lausanne, Switzerland (“Time scaling results for Markov-modulated infinite-server systems and OU processes”; organizers: J. Ivanovs and H. Albrecher)
- 2014: Invited talk Royal Dutch Academy of Sciences, Amsterdam, the Netherlands (“NETWORKS: een multidisciplinair project”, in Dutch; organizer: J. Bergstra)
- 2014: Invited talk Spui25, Amsterdam, the Netherlands (“Stand van de Wetenschap: wiskunde”, with J.K. Lenstra, in Dutch; organizer: M. Ester)
- 2015: Key note Dutch Mathematical Congress (NMC), Leiden, the Netherlands (“Scaling limits for stochastic networks”; organizers: E. Verbitskiy and R. van Luijk)
- 2015: Invited talk University of Melbourne, Australia (“Time scaling results for Markov-modulated infinite-server systems and OU processes”; organizer: P. Taylor)
- 2016: Opening address ‘Scaling limits for stochastic networks’, ‘Back to School’-day of LNMB-NGB, Lunteren, the Netherlands
- 2016: Invited talk General Mathematics Colloquium, Vrije Universiteit Amsterdam, Amsterdam, the Netherlands (“Time scaling results for Markov-modulated infinite-server systems and OU processes”; organizer: R. de Jeu)
- 2016: Invited talk Meeting on Stochastic Networks, Będlewo, Poland (“Markov-modulated Erlang systems”; organizers: T. Rolski, Z. Palmowski, K. Dębicki, and R. Szekli)
- 2017: Invited talk seminar Columbia University, New York, US (“Stationary appointment schedules”; organizer: A. Zeevi)
- 2017: Invited talk Dutch-Israeli Queueing Meeting, Eindhoven, the Netherlands (“On a class of reflected AR(1) processes”; organizer: O. Boxma)
- 2017: Invited talk University of Melbourne, Australia (“Appointment schedules”; organizer: P. Taylor)
- 2017: Key note ACEMS annual retreat, Gold Coast, Australia (“Queueing processes on dynamically evolving graphs”; organizer: P. Taylor)
- 2018: Invited talk seminar Tata Institute for Fundamental Research, Mumbai, India (“Overdispersion and multi-timescale models: exact asymptotics”; organizer: S. Juneja)
- 2018: Invited mini-course TIFR/IIT colloquium, Mumbai, India (“Population processes on randomly evolving graphs”; organizer: S. Juneja)
- 2018: Invited talk ISI-NETWORKS Conference in Probability, Kolkata, India (“Population processes on randomly evolving graphs”; organizers: A. Bose, R. Hazra, K. Maulik, A. Chakrabarty, P. Roy)
- 2018: Invited talk seminar Leiden University (“Overdispersion and multi-timescale models: exact asymptotics”; organizer: H. Guldás and F. den Hollander)
- 2018: Invited talk Meeting on Stochastic Networks, Będlewo, Poland (“Overdispersion and multi-timescale models: exact asymptotics”; organizers: T. Rolski, P. Lorek, K. Dębicki, and R. Szekli)
- 2018: Invited talk Symposium on Optimal Stopping, In Memory of Larry Shepp, Houston, US (“Overdispersion and multi-timescale models: exact asymptotics”; organizer: Philip Ernst)
- 2018: Invited talk seminar University of Bristol (“Overdispersion and multi-timescale models: exact asymptotics”; organizer: A. Ganesh)
- 2018: Invited talk seminar University of Liverpool (“Models for overdispersion, and applications”; organizer: C. Constantinescu)

- 2019: Invited talk seminar Tel Aviv University (“Models for overdispersion, and applications”; organizer: R. Snitkovsky)
- 2019: Invited talk workshop Honouring Prof. Peter Taylor, Eagle Heights, Australia (“Estimating the input of a Lévy-driven queue by Poisson sampling of the workload process”; organizers: A. Asanjarani, S. Hautphenne, M. Fackrell, S. Vaisman, and I. Ziedins.)
- 2019: Invited talk University of Queensland, Brisbane, Australia (“Simulation-based assessment of the stationary tail distribution of a stochastic differential equation”; organizer: T. Taimre)
- 2019: Key note YEQT XIII, Eindhoven, the Netherlands (“The workload correlation function is positive, decreasing and convex”; organizers: M. van der Boor, C. Drent, and L. Ravner)

## Thesis

M. Mandjes (1996). *Rare event analysis of communication networks*. Vrije Universiteit Amsterdam.

## Books

M. Mandjes. *Large deviations for Gaussian queues*. Wiley, Chichester, UK, 2007.

K. Dębicki and M. Mandjes. *Queues and Lévy fluctuation theory*. Springer, New York, USA, 2015.

## Refereed publications

1993-2000:

- (1) M. Mandjes (1993). Large deviations and queueing applications. *Operations Research Proceedings DGOR/NSOR*, Amsterdam, the Netherlands, pp. 35-41.
- (2) M. Mandjes and A. Ridder (1995). Finding the conjugate of Markov fluid processes. *Probability in the Engineering and Informational Sciences*, Vol. 9, pp. 297-315.
- (3) M. Mandjes (1995). Overflow asymptotics for large communication systems with general Markov fluid sources. *Probability in the Engineering and Informational Sciences*, Vol. 10, pp. 501-518.
- (4) M. Mandjes (1996). Rare event analysis of batch-arrival queues. *Telecommunication Systems*, Vol. 6, pp. 161-180.
- (5) M. Mandjes (1997). Fast simulation of blocking probabilities in loss networks. *European Journal of Operational Research*, Vol. 101, pp. 393-405.
- (6) M. Mandjes and H. van den Berg (1997). Some new techniques for resource allocation in single- and multi-link ATM systems. *Proceedings ITC 15*, Washington DC, USA, pp. 1257-1268.
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- (3) F. den Hollander, M. Mandjes, A. Roccaverde, and N. Starreveld. Breaking of ensemble equivalence for perturbed Erdős-Rényi random graphs.
- (4) E. Cahen, M. Mandjes, and B. Zwart. Efficient and unbiased simulation for the stationary limit of a multidimensional stochastic recursion.
- (5) S. Juneja, M. Mandjes, and S.B. Moka. Rejection and importance sampling based perfect simulation for Gibbs processes with a focus on hard-sphere models.
- (6) Y. Peeters, A. den Boer, and M. Mandjes. Continuous assortment optimization with logit choice probabilities under incomplete information.
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