

CURRICULUM VITAE

Name: **Professor Stein W. Wallace, dr.scient.**
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Education

Cand.mag: (B.Sc.) in mathematics, informatics and economics at the Faculty of Mathematics and Natural Sciences at the University of Bergen, Norway, (1977–1979).
Cand.real: (M.Sc.) in informatics at the Department of Mathematics at the University of Bergen, Norway, (1980–1981). Thesis supervisor: Sverre Storøy. Thesis title: Enumeration Algorithm in Linear Programming. (Written in Norwegian).
Dr.scient: (Ph.D) at the Faculty of Mathematics and Natural Sciences at the University of Bergen, Norway, (1982–1984). Thesis supervisors: Sverre Storøy and Roger J-B Wets. Thesis title: Enumerative methods for stochastic programs with network recourse.

Permanent or full-time positions

2012– Professor of Operational Research and leader of Center for Shipping and Logistics, Norwegian School of Economics, Bergen
2009–17 Professor of Operational Research, Lancaster University Management School. Full-time until 2012.
2007–09 Visiting Professor, Chinese University of Hong Kong (30 months)
1999–09 Professor of Quantitative Logistics, Molde University College, full-time 2001–07.
1990–2004 Professor of OR, The Norwegian University of Science and Technology. Full-time until 2001.
1988–90 Associate Professor at Haugesund Maritime College.
1981–88 Senior Scientist at Chr. Michelsen Institute, Bergen, Norway.

Part-time and visiting positions

2017– Adjunct full professor, Norwegian University of Science and Technology, Trondheim
2016 Visiting Professor, University of Vienna, Austria (October)
2015– Foreign Expert, University of Sichuan, Chengdu.
2014 Foreign Expert, University of Science and Technology Beijing
2013 Visiting Scholar at University of Nottingham, Ningbo, China (2 weeks).
2011–14 Adjunct Professor, Dept of Maritime Technology, NTNU, Trondheim, Norway
2010 "Prominent overseas researcher", Tsinghua University, Beijing (2 weeks).
2006–07 Visiting Professor, IBM Watson Research Center, Yorktown Heights, NY (8 months).
2006 Visiting scholar, Columbia Business School, NY (3 months).
2004 Visiting lecturer, Department of statistics and operations research, University of Malta.
2001 Operational Research Society of New Zealand visiting lecturer.
2000–01 Group leader, Centre for advanced study, Oslo (10 months).
1996–97, 00 Visiting Professor, ENSGI / INPG, Grenoble, France (10 months and 1 month).
1994 Visiting Professor, University of Linköping, Sweden (1 month).
1993 Visiting scientist, University of Zürich (3 months).
1991–2005 Scientific Advisor to Sintef
1989, 90,91,92 Visiting scientist at the Science Institute, University of Iceland.
1988 and 89 Visiting Scholar, Dept. of Mathematics, University of California at Davis (3 months).
1985–86 Visiting Assistant Professor at Dept. of Mathematics, University of Washington, Seattle.
1982 Visiting Scholar at Center for Cybernetic Studies, University of Texas at Austin, Texas, USA.
1982–86 Lecturer at graduate level at the Dept. of Informatics, University of Bergen.
1980–81 Research Assistant (Vitenskaplig assistent) at the Dept. of Mathematics, University of Bergen.

Other appointments and duties.

2016–	Appointed member of Reference Group for The Research Council of Norway regarding H2020 and research in transport and logistics.
2014–	Council Member for NHH at The Nordic Centre at Fudan University, Shanghai.
2013–17	Member of International Committee, Norwegian School of Economics.
2009–12	PhD Director for Department of Management Science and as such member of the Research Committee at School level and the Head of Department’s advisory group.
2003–05	Department vice chairman.
2003–07	Study leader for master and doctoral studies (administrative position)
2002–07	Chair of doctoral committee, Molde University College
1997–99	Section leader for business administration and operations research
1993–99	International Officer at faculty level (from 1996 department level), with special responsibility for ERASMUS.
1991–96	Department vice chairman

Doctoral students

Nils Jacob Berland	1993. Stochastic programming and parallel processing.
Kjetil Høyland	1998. Asset liability management for a life insurance company. A stochastic programming approach.
Asgeir Tomasgard	1998. Telecommunications and stochastic programming.
Nina Detlefsen	1999. Basis properties in multi-commodity networks
Trond Jørgensen	1999. Project scheduling as a stochastic dynamic decision problem.
Stein-Erik Fleten	2000. Portfolio management in the energy sector.
Bård Reitan	2003. Quantative methods for strategic planning in telecommunications.
Michal Kaut	2003. Portfolio management in insurance.
Erling Pettersen	2004. End user portfolios in electricity markets.
Arnt-Gunnar Lium	2006. Stochastic service network design.
Bjørnar Aas	2008. Upstream logistics in offshore petroleum production.
Hajnalka Vaagen	2009. Assortment planning under uncertainty.
Biju Kumar Thapalia	2010. Stochastic network design.
Yifei Zhao	2013. Stochastic facility layout. Dept. prize for best PhD 2014.
Giovanni Pantuso	2014. Maritime fleet management. (Co-adviser.)
Pedro Crespo Del Granado	2014. Energy modelling.
Xin Wang	2014. Stochastic network design.
Jamie Fairbrother	2016. Scenario generation.
Seyed Mirhedayatian	2018 Two-echelon location routing.
Yewen Gu	2018 Maritime emission regulation.
Vit Prochazka	Stochastics in shipping, scheduled 2018.

Thesis supervisor for more than 60 master’s students.

Editorial Board

- Associate editor of *INFORMS (ORSA) Journal on Computing*, 1990–
- Member of Editorial Board *Energy Systems*, 2008 –2017.
- Member of Editorial Board *EURO Journal on Transportation and Logistics*, 2011 –
- Member of Editorial Board *Computational Management Science*, 2011 –
- Member of Editorial Board, *Quantitative Finance Letters*, 2015–
- Member of Editorial Board *International Journal of Inventory Research*, 2015 –
- Co-editor of *Production Planning & Control*, 1998–2000, International Editorial Board, 2000–2015.
- Associate editor of *Optimization and Engineering*, 2003–2017.

Other editorial duties.

- Editor of *Algorithms and Model Formulations in Mathematical Programming*. Proceedings of the NATO Advanced Research Workshop in Bergen, June 15-19, 1987, Springer Verlag, Berlin (1989).
- Editor of *Nordic Cooperation on Marine Multispecies Research*. Report from a Nordic conference on the same theme in Haugesund, August 31 to September 1, 1989.
- Guest editor of Volume 64 (1996) of *Annals of Operations Research* on Stochastic programming, algorithms and models. (With Julia Higle and Suvrajeet Sen).
- Guest editor of Volume 82 (1998) of *Annals of Operations Research* on Modelling in memory of Åsa Hallefjord.
- Guest editor of Volume 6, No 1 (2007) of *Journal of Mathematical Modelling and Algorithms*. (With Arne Løkketangen and Teodor G. Crainic.)
- Guest editor of Volume 134, No 2 (2011) of *International Journal of Production Economics* on robust supply chains management. (With Tsan-Ming Choi.)
- Guest editor of Volume 22, No 3 (2011) of *Production Planning and Control* on challenges in apparel production planning and control. (With Tsan-Ming Choi.)
- Guest editor of Volume 67, No 2 (2016) of *The Journal of the Operational Research Society* on Risk management and coordination in service supply chains: information, logistics and outsourcing. (With Tsan-Ming Choi.)
- Guest editor of special issue on Urban Freight Transportation & Logistics in *Transportation Science*. (With Teodor Gabriel Crainic and Lei Zhao.)

Professional organizations

- Board Member, EURO Working Group on Stochastic Programming. 2016–
- Core members of the jury for the EURO best EJOR paper award (EABEP). Appointed by the EURO Council. 2015–18. Chair 2018.
- Member of Syngeta and INFORMS Crop Challenge prize committee. 2015–16.
- Member of Howard Rosenbrock Prize Committee, Best paper in OPTE, 2015–
- Founder and Leader of Interim Board for a new Norwegian Operations Research Society (NORS). 2013–15.
- Council Member in the British OR Society. 2011–13.
- Elected international liaison for Europe and Africa in the Transportation Science and Logistics Society in INFORMS. 2006–13.
- Elected chair of The Committee on Stochastic Programming (COSP) in The Mathematical Programming Society (MPS), 1992–95, member of the committee 1995–2001.
- Appointed member of The Committee on Algorithms (COAL) in MPS, 1986–1994.
- Appointed member of the MPS Membership Committee 1990–1996.
- Appointed member of the MPS Applications Committee 1996–1997.
- Elected leader of the Nordic Section of MPS. 1990–94.
- Norwegian representative in TC7 of The International Federation for Information Processing (IFIP), 1996–2000
- Member of Working Group 7.7: Stochastic Optimization, IFIP, since the start of the WG.
- Member of Working Group 7.4: Discrete Optimization under IFIP, 1997–

Books

- 1 *The Nordic Fisheries Management Model*, Nord 1994:4, The Nordic Council of Ministers, Copenhagen, 1994, pp. 105. (With Snjólfur Ólafsson, University of Iceland).
- 2 *Stochastic Programming*, Wiley, Chichester, 1994. (With Peter Kall, University of Zürich.) Reprinted 1995, 1997.
- 3 *Operasjonsanalyse*, Cappelen Akademisk Forlag, Oslo, 1999. (With Kurt Jørnsten and Sverre Storøy.) (Basic OR textbook in Norwegian.)

- 4 *Applications of Stochastic Programming*, MPS-SIAM Series on Optimization, Philadelphia, 2005. (Edited with William T. Ziemba, University of British Columbia.)
- 5 *Modeling with stochastic programming*, Springer, 2012. (With Alan King, IBM).

Refereed journal articles

- 6 On degeneracy in enumeration. *BIT* 23 (1983) 267–270.
- 7 Decomposing the requirement space of a transportation problem into polyhedral cones. *Mathematical Programming Study* 28 (1986) 29–47.
- 8 Incidence matrix for a transportation problem. Problem 85-2 in *SIAM Review* 27 (1985).
- 9 Pivoting rules and redundancy schemes in extreme point enumeration. *BIT* (1985) 274–280.
- 10 Optimal fleet size when national quotas can be traded. *Marine Resource Economics* (1986) 315–329. (With K. Brekke)
- 11 Refining bounds for stochastic linear programs with linearly transformed independent random variables. *Operations Research Letters* 5 (1986) 73–77. (With John R. Birge.)
- 12 Solving stochastic programs with network recourse. *Networks* 16 (1986) 295–317.
- 13 Investing in arcs in a network to maximize the expected max flow. *Networks* 17 (1987) 87–103.
- 14 A piecewise linear upper bound on the network recourse function. *Mathematical Programming* 38 (1987) 133–146.
- 15 A comment on Inspection and Maintenance Optimization Methods by K.M.Mjelde. *European Journal of Operational Research* 28 (1987) 226–227. (With Å. Hallefjord, K. Jörnsten and S. Storøy.)
- 16 Bounds on the expected maximal value of a class of stochastic network problems. *INFOR* 26 (1988) 153–162.
- 17 A separable piecewise linear upper bound for stochastic linear programs. *SIAM Journal of Control and Optimization* 25 (1988) 725–739. (With J. R. Birge.)
- 18 Solving many linear programs that differ only in the righthand side. *European Journal of Operational Research* 37 (1988) 318–324. (With D. Haugland.)
- 19 Bounding the expected time-cost curve for a stochastic PERT network from above. *Operations Research Letters* 8 (1989) 89–94.
- 20 Preprocessing in stochastic programming - The case of uncapacitated networks. *ORSA Journal on Computing* 1 (1989) 252–270. (With Roger J-B Wets.)
- 21 Approximate scenario solutions in the progressive hedging algorithm. *Annals of Operations Research*, 31 (1991) 425–444. (With Thorkell Helgason.)
- 22 Structural properties of the progressive hedging algorithm. *Annals of Operations Research*, 31 (1991) 445–456. (With Thorkell Helgason.)
- 23 Preprocessing in stochastic programming - The case of linear programs. *ORSA Journal on Computing*, 4 (1992) 45–59. (With Roger J-B Wets).
- 24 Overcoming the (apparent) problem of inconsistency in O-D matrix estimations. *Transportation Science*, 27 (1993) 374–380. (With Kurt Jörnsten).
- 25 The facets of the polyhedral set determined by the Gale-Hoffman inequalities. *Mathematical Programming* 62 (1993) 215–222. (With Roger J-B Wets.)
- 26 Bounding multistage stochastic linear programs from above. *Mathematical Programming* 61 (1993) 111–130. (With Tiecheng Yan.)
- 27 Preprocessing in stochastic programming: The case of capacitated networks. *ORSA Journal on Computing* 7 (1995) 44–62. (With Roger J-B Wets.)
- 28 Feasibility in uncapacitated networks: The effect of individual arcs and nodes. *Annals of Operations Research* 64 (1996) 197–210. (With Saied Ghannadan.)
- 29 Feasibility in capacitated networks: The effect of individual arcs and nodes. *Annals of Mathematics and Artificial Intelligence* 17 (1996) 145–153. (With Saied Ghannadan.)
- 30 Solving linear programs with multiple right-hand sides: Pricing and ordering schemes. *Annals of Operations Research* 64 (1996) 237–259. (With Horand I. Gassmann).
- 31 Feasibility in transportation networks with supply eating arcs. *Networks* 31 (1998) 165–176. (With Shane Dye and Asgeir Tomasgard.)

- 32 Option theory and modeling under uncertainty. In *Essays in honour of Bjørn Nygreen on his 50th birthday*, Department of Managerial Economics and Operations Research, NTNU (eds. E. Matson, A. Tomasgard, E. Meistad and S. Dye), 1996, pp. 147–167. (With Daniel Christiansen.) Also *Annals of Operations Research* 82 (1998) 59–82.
- 33 Modelling aspects of distributed processing in telecommunications networks. *Annals of Operations Research* 82 (1998) 161–184. (With A. Tomasgard, S. Dye, Jan A. Audestad, L. Stougie and M. van der Vlerk.)
- 34 Work patterns in project scheduling. *Annals of Operations Research* 82 (1998) 1–8. (With Å. Hallefjord, Norske Shell.)
- 35 Decision making under uncertainty: Is sensitivity analysis of any use? *Operations Research*, 48 (2000) 20–25.
- 36 Résolution d’un problème d’ordonnement dynamique dans un contexte de ”livraison synchrone”: cas trois produits. *Journal Européen des Systèmes Automatisés* 34 (2000) 1253–1276. (With Lyès Benyoucef, Yannick Frein and Bernard Penz.)
- 37 Improving project cost estimation by taking into account managerial flexibility. *European Journal of Operational Research* 127 (2000) 239–251. (With Trond Jørgensen.)
- 38 Scenarios for multistage stochastic programs. *Annals of Operations Research* 100 (2000) 25–53. (With Jitka Dupacova and Giorgio Consigli.)
- 39 Generating scenario trees for multi-stage decision problems. *Management Science* 47 (2001) 295–307. (With K. Høyland.)
- 40 Analyzing legal regulations in the Norwegian life insurance business using a multistage asset liability management model. *European Journal of Operational Research* 134 (2001) 293–308. (With Kjetil Høyland.)
- 41 The simplex algorithm for multicommodity networks. *Networks* 39-1 (2002) 15–28. (With Nina Detlefsen.)
- 42 The performance of stochastic dynamic and fixed mix portfolio models. *European Journal of Operational Research* 140 (2002) 37–49. (With Kjetil Høyland and Stein-Erik Fleten.)
- 43 Managing risk in the new power business - a sequel. *IEEE Computer Applications in Power* April (2002) 12–19. (With Julia Higle.)
- 44 Developing and implementing a stochastic decision-support model within an organizational context: Part I – The model. *Journal of Risk Finance* 4 (2003) 55–60. (With Kjetil Høyland and Erik Ranberg.)
- 45 A heuristic for moment-matching scenario generation. *Computational Optimization and Applications* 24 (2003) 169–185. (With Michal Kaut and Kjetil Høyland.)
- 46 Sensitivity analysis and uncertainty in linear programming. *INTERFACES* 33(4) (2003) 53–60. (With Julia Higle, University of Arizona.)
- 47 Dalton transfers, inequality and altruism. *Social Choice and Welfare* 22(3) (2004) 447–465. (With Dominique Thon.) Reprinted in Robert A. Becker (ed.) *The economic theory of income inequality*, Edward Elgar Publishing, Cheltenham, 2013, 244–262.
- 48 Equity in dyads; the notion of more equitable. *Rationality and Society* 16 (2004) 191–224. (With Dominique Thon.)
- 49 Developing and implementing a stochastic decision-support model within an organizational context: Part II – The organization. *Journal of Risk Finance* 5 (2004) 58–63. (With Kjetil Høyland and Erik Ranberg.)
- 50 Developing and implementing a stochastic decision-support model within an organizational context – The experience. *Journal of Risk Finance* 6:1 (2005) 40–46. (With Kjetil Høyland and Erik Ranberg.)
- 51 An Electricity Market Game between Consumers, Retailers and Network Operators. *Journal of Decision Support System* 40:3-4 (2005) 427–438. (With Andy Philpott and Erling Pettersen.)
- 52 Stochastic programming: Potential hazards when random variables reflect market interaction. *Annals of Operations Research* 142 (2006) 121–129. (With Kjetil K. Haugen.)
- 53 Optimization model for a livestock collection problem. *International Journal of Physical Distribution and Logistics Management* 36:2 (2006) 136–152. (With Irina Gribkovskaia, Bjørn O. Gullberg and Karl J. Hovden.)
- 54 Evaluation of scenario-generation methods for stochastic programming. *Pacific Journal of Optimization* 3:2 (2007) 257–271. (With Michal Kaut).

- 55 Correlations in Stochastic Programming: A Case from Stochastic Service Network Design. *Asia-Pacific Journal of Operational Research* 24:2 (2007) 161–179. (With Arnt-Gunnar Lium and Teodor G. Crainic.)
- 56 Stability analysis of portfolio management with conditional value-at-risk. *Quantitative Finance* 7:4 (2007) 397–409. (With Michal Kaut, Hercules Vladimirov and Stavros Zenios.)
- 57 Product variety arising from hedging in the fashion supply chains. *International Journal on Production Economics* 114 (2008) 431–455. (With Hajnalka Vaagen.)
- 58 A study of demand stochasticity in service network design. *Transportation Science* 43 (2009) 144–157. (With Arnt-Gunnar Lium and Teodor Gabriel Crainic.)
- 59 Using inventory to handle risks in the supply of oil to Nepal. *Int. J. Business Performance and Supply Chain Modelling* 1:1 (2009) 41–60. (With Biju K. Thapalia and Michal Kaut.)
- 60 The role of supply vessels in offshore logistics. *Marine Economics and Logistics* 11 (2009) 302–325. (With Bjørnar Aas and Øyvind Halskau.)
- 61 Inequality comparisons when the populations differ in size. *The Journal of Economic Inequality* 8 (2010) 47–70. (With Dominique Thon and Ronny Aboudi.) Reprinted in Robert A. Becker (ed.) *The economic theory of income inequality*, Edward Elgar Publishing, Cheltenham, 2013, 263–286.
- 62 Stochastic programming and the option of doing it differently. *Annals of Operations Research* 177, No 1 (2010) 3–8.
- 63 Management of logistics planning. *Int. J. of Information Systems and Supply Chain Management* 3, No 3 (2010) 1–17. (With Bjørnar Aas.)
- 64 Editorial: Challenges in apparel production planning and control. *Production Planning and Control* 22, No 3 (2011) 209. (With Tsan-Ming Choi.)
- 65 The value of numerical models in quick response assortment planning. *Production Planning and Control* 22, No 3 (2011) 221–236. (With Hajnalka Vaagen and Michal Kaut.)
- 66 Modelling consumer directed substitution. *International Journal on Production Economics* 134, No 2 (2011) 388–397. (With Hajnalka Vaagen and Michal Kaut.)
- 67 Flexibility, information structure, options, and market power in robust supply chains. *International Journal on Production Economics* 134, No 2 (2011) 284–288. (With Tsan-Ming Choi.)
- 68 Shape-based scenario generation using copulas. *Computational Management Science* 8 (2011) 181–199. (With Michal Kaut.)
- 69 Single-commodity stochastic network design with multiple sources and sinks. *INFOR* 49, No 3 (2011) 193–211. (With Biju K. Thapalia, Teodor G. Crainic and Michal Kaut.)
- 70 Progressive Hedging-based Meta-heuristics for Stochastic Network Design. *Networks* 58, No 2 (2011) 114–124. (With Teodor Gabriel Crainic, Xiaorui Fu, Michel Gendreau and Walter Rei.)
- 71 Single Source Single-Commodity Stochastic Network Design. *Computational Management Science* 9, No 1 (2012) 139–160. (With Biju K. Thapalia, Teodor G. Crainic and Michal Kaut.)
- 72 Single-commodity network design with random edge capacities. *European Journal of Operational Research* 220 (2012) 394–403. (With Biju K. Thapalia, Teodor G. Crainic and Michal Kaut.)
- 73 Analyzing the quality of the expected value solution in stochastic programming. *Annals of Operations Research* 200 (2012) 37–54. (With Francesca Maggioni.)
- 74 Planning vessel air emission regulations compliance under uncertainty. *Journal of Marine Science and Technology* 18, No3 (2013) 349–357. (With Oceane Balland, Kjetil Fagerholt and Stein Ove Erikstad.)
- 75 Modelling av usikkerhet i numeriske likevektsmodeller med stokastisk scenariometode. *Sosialøkonomen* 127 (2013) 16–26. (With Kjell Arne Brekke, Rolf Golombek, Michal Kaut and Sverre A.C. Kittelsen.)
- 76 Stochastic Service Network Design with Rerouting. *Transportation Research Part B* 60 (2014) 50–65. (With Ruibin Bai, Jingpeng Li, Alain Yee-Loong Chong.)
- 77 A Two-Stage Stochastic Program for Airfreight Forwarder’s Shipment Planning. *Transportation Research Part E* 66 (2014) 83–102. (With Yervan Hui and Lawrence Leung.)
- 78 The value of electricity storage in domestic homes: A smart grid perspective. *Energy Systems* 5(2) (2014) 211–232. (With Pedro Crespo Del Granado and Zhan Pang.)
- 79 Integrated facility layout design and flow assignment problem under uncertainty. *INFORMS Journal on Computing* 26(4) (2014) 798–808. (With Yifei Zhao.)
- 80 Solving hierarchical stochastic programs: application to the Maritime Fleet Renewal Problem. *INFORMS Journal on Computing* 27 (1) (2015) 89–102. (With Giovanni Pantuso and Kjetil Fagerholt.)

- 81 Distributionally Robust Multi-Item Newsvendor Problems with Multimodal Demand Distributions. *Mathematical Programming* 152(1–2) (2015) 1–32. (With Grani A. Hanasusanto, Daniel Kuhn and Steve Zymler.)
- 82 Service Supply Chain Management: A Review of Operational Models. Invited review article in *European Journal of Operational Research* 247(3) (2015) 685–698. (With Tsan-Ming Choi, Bin Shen and Yulan Wang.)
- 83 A heuristic for the single-product capacitated facility layout problem with random demand. *EURO Journal on Transportation and Logistics* 4 (2015) 379–398. (With Yifei Zhao.)
- 84 Uncertainty in fleet renewal: a case from maritime transportation. *Transportation Science* 50 (2) (2016) 390–407. (With Giovanni Pantuso and Kjetil Fagerholt.)
- 85 Appraising redundancy in facility layout. *International Journal of Production Research* 54(3) (2016) 665–679. (With Yifei Zhao.)
- 86 Stochastic scheduled service network design in the presence of a spot market for excess capacity. *EURO Journal on Transportation and Logistics* 5 (2016) 393–413. (With Xin Wang.)
- 87 The impact of wind uncertainty on the strategic valuation of distributed electricity storage. *Computational Management Science* 13 (1) (2016) 5–27. (With Pedro Crespo Del Granado and Zhan Pang.)
- 88 Risk management and coordination in service supply chains: information, logistics and outsourcing. *Journal of the Operational Research Society – JORS* 67(2) (2016) 159–164 (With Tsan-Ming Choi and Yulan Wang.)
- 89 Synergy of smart grids and hybrid distributed generation on the value of energy storage. *Applied Energy Journal* 170 (2016) 476–488. (With Pedro Crespo Del Granado and Zhan Pang.)
- 90 Which uncertainty is important in multistage stochastic programs? A case from maritime transportation. *IMA Journal of Management Mathematics* 28 (1) (2017) 5–17. (With Giovanni Pantuso and Kjetil Fagerholt.)
- 91 The impact of design uncertainty in engineer-to-order project planning. *European Journal of Operational Research* 261 (3) (2017) 1098–1109. (With Hajnalka Vaagen and Michal Kaut.)
- 92 Stochastic multi-commodity network design: The quality of deterministic solutions. *Operations Research Letters* 45 (2017) 266–268. (With Congshi Sun and Li Luo.)
- 93 Stochastic energy market equilibrium modeling with multiple agents. *Energy* 134 (2017) 984–990. (With Kjell Arne Brekke, Rolf Golombek, Michal Kaut and Sverre A.C. Kittelsen.)
- 94 Scenario generation for single-period portfolio selection problems with tail risk measures: coping with high dimensions and integer variables. To appear in *INFORMS Journal on Computing*. (With Jamie Fairbrother and Amanda Turner.)
- 95 Scrubber: a potentially overestimated compliance method for the Emission Control Areas - The importance of involving operational behavior changes in the evaluation. *Transportation Research D* 55 (2017) 51–66. (With Yewen Gu.)
- 96 Planning for charters: a stochastic maritime fleet composition and deployment problem. *Omega* 79 (2018) 54–66. (With Xin Wang and Kjetil Fagerholt.)
- 97 Stochastic programs with binary distributions: Structural properties of scenario trees and algorithms. *Computational Management Science* 15 (2018) 397–410. (With Vít Procházka.)
- 98 Integrated maritime fuel management with stochastic fuel prices and new emission regulations. To appear in *Journal of the Operational Research Society*. (With Yewen Gu and Xin Wang.)
- 99 Big Data Analytics in Operations Management. To appear in *Production and Operations Management*. (With Tsan-Ming Choi and Yulan Wang.)
- 100 Stochastic Network Design for Planning Scheduled Transportation Services: The Value of Deterministic Solutions. To appear in *INFORMS Journal on Computing*. (With Xin Wang and Teodor Gabriel Crainic.)

Submitted

- 101 Scenario generation for stochastic programs with tail risk measures. Under second review for *Mathematical Programming*. (With Jamie Fairbrother and Amanda Turner.)
- 102 Vehicle Routing with Space- and Time-Correlated Stochastic Travel Times: Evaluation of the objective function. Under second revision *INFORMS Journal on Computing*. (With Zhaoxia Guo and Michal

- Kaut.)
- 103 Stochastic Optimization Models for a Bike-Sharing Problem with Transshipment. Under first revision in *European Journal of Operational Research*. (With Luca Bertazzi, Francesca Maggioni and Matteo Cagnolari.)
- 104 Scenario tree construction driven by heuristic solutions of the optimization problem. Submitted. (With Vít Procházka.)
- 105 The value of foresight in the drybulk freight market. Submitted. (With Vít Procházka and Roar Os Adland.)
- 106 Shortest Paths with Spatially and Temporally Correlated Stochastic Speeds: Is Sampling Good Enough? Submitted. (With Dongqing Zhang, Zhaoxia Guo; and Yucheng Dong.)
- 107 Building Trust in Home Services - Stochastic Team-Orienteering with Consistency Constraints. Submitted. (With Yongjia Song, Marlin Ulmer and Barrett Thomas.)

Refereed book chapters etc.

- 108 A two-stage stochastic facility-location problem with time-dependent supply. In Y. Ermoliev and R. J-B Wets (eds.), *Numerical Techniques in Stochastic Optimization*, Springer Verlag, Berlin (1988) 489–514.
- 109 Stochastic programs with recourse: Upper bounds. In C.A. Floudas and P.M. Pardalos (eds), *Encyclopedia of Optimization* 5 (2001) 346–350, Kluwer Academic Publishers. (With Chanaka Edirisinghe.)
- 110 Preprocessing in stochastic programming. In C.A. Floudas and P.M. Pardalos (eds), *Encyclopedia of Optimization* 4 (2001) 360–363, Kluwer Academic Publishers.
- 111 Hedging electricity portfolios via stochastic programming. In C. Greengard and A. Ruszczyński (eds.), *Decision Making under Uncertainty: Energy and Power*. The IMA Volumes in Mathematics and its Applications, Volume 128 (2002) 71–94. Springer, New York. (With Stein-Erik Fleten and William Ziemba.)
- 112 Stochastic programming models in energy. Chapter 10 on *Stochastic Programming* in the series *Handbooks in operations research and management Science*, Vol. 10 (2003) 637–677, Elsevier, Amsterdam. (With Stein-Erik Fleten.)
- 113 Stochastic Programming Models for Strategic and Tactical Asset Allocation – A study from Norwegian Life Insurance. Chapter 13 in *Handbook of Asset and Liability Management, Volume 2* in the series *Handbooks in Finance*, North- Holland, 2007, 591–625. (With Kjetil Høyland.)
- 114 Stability of Portfolios Optimized with Conditional Value-at-Risk, In *Quantitative Fund Management* (M.A.H. Dempster, G.Ch. Pflug and G. Mitra, eds.) (2008) 315–335, Francis & Taylor. (With Michal Kaut, Hercules Vladimirov and Stavros Zenios.)
- 115 Integer programming models of bookmobile routing. In *Aspects of Mathematical Modelling*, (R.J. Hosking and E. Venturino, eds.) (2008) 305–320, Birkhäuser Verlag, Basel. (With Les Foulds, John Wilson and Martin West.)
- 116 Delta-hedging a hydropower plant using stochastic programming. In J. Kallrath, P.M. Pardalos, S. Rebennack and M. Scheidt (eds), *Optimization in the Energy Industry*, Springer, 2009, 515–532. (With Stein-Erik Fleten.)
- 117 The value of information in quick response supply chains: An assortment planning view. In T.C. Edwin Cheng and Tsan-Ming Choi (eds.) *Innovative quick response programs in logistics and supply chain management*. Springer, Berlin (2010) 91–121. (With Hajnalka Vaagen.)
- 118 Stochastic second-order cone programming in mobile ad-hoc networks: Sensitivity to input parameters. In Horand Gassmann and William Ziemba (eds.) *Stochastic Programming: Applications in Finance, Energy, Planning and Logistics*. World Scientific (2013) 467–486.
- 119 The Impact of Bunker Risk Management on CO2 Emissions in Maritime Transportation Under ECA Regulation. In Didem Cinar, Konstantinos Gakis and Panos M. Pardalos (eds.) *Sustainable Logistics and Transportation: Optimization Models and Algorithms*, Springer, NY (2017).

International PhD activities.

- Organizer of a Nordic Research Course in stochastic programming, January 1994. Financed by NorFA.

- Invited speakers: Roger J-B Wets and Alan King.
- Organizer of a Nordic Research Course in model analysis, August, 1997. Supported by NorFA. (With Nina Detlefsen.) Invited speakers: Harvey Greenberg and Fred Murphy.
 - Half-day introduction to stochastic modelling at Nordic (NoRFA) PhD- course in optimization in Bornholm, Denmark, May 2002.
 - Benders' decomposition. Presentation at Electric Energy Systems University Enterprise Training Partnership's course on Optimization Techniques in Madrid, February 2003.
 - Organizer of Nordic Research Course on Multimodal Transportation in Quantitative Logistics, Molde, April 2003. Financed by NorFA. Main invited speaker: Teodor G. Crainic.
 - Two-week PhD course on stochastic programming, Tsinghua University, Beijing, September 2010.
 - Introduction to Stochastic Programming, PhD course, Norway, March 2011.
 - One-week PhD course in stochastic programming, National Taiwan University, July 2011.
 - Six hours (over three days) on stochastic programming at PhD seminar in Zinal, Switzerland, January 2013.
 - Half day introduction to stochastic programming. PhD course on stochastic programming in energy, Tignes, France, April 2013.
 - One-week PhD course in stochastic programming, Aarhus Business School, Denmark, May 2013.
 - Tutorial on stochastic programming during pre-conference PhD course for the 13th Conference on Stochastic Programming, Bergamo, Italy, July 2013.
 - One-week PhD course in stochastic programming, University of Vienna, Austria, October 2016.
 - Two-day PhD course in stochastic programming, Lancaster University, England, February 2017.
 - Organizer of and one of the teachers in PhD course on Rural Logistics, Bergen, Norway, August 2018. Funded by SIU and EURO.

Executive education.

Developed and taught within a joint program between the Norwegian University of Science and Technology and The Norwegian School of Economics and Business Administration, financially supported by Telenor, Norway's largest telecommunications company. The program was run three times, and led to the degree Master of Technology Management. Partly in English.

Consultancy. (Not chronological. All these projects ran over several years and involved substantial funding.)

- Gjensidige NOR Asset Management. Portfolio management for a life insurance company. Developed optimization model used for several years as a basis for the investment decisions.
- Association of Norwegian Energy Producers. Portfolio management in the energy sector. The electricity sector is fully deregulated in Norway, and risk management is an important issue.
- Statoil. Supply chain planning for the offshore sector. Statoil is one of the world's largest oil and gas producers and operates fields under harsh climatic conditions. Supplying offshore platforms becomes a major financial issue as lack of supplies may imply losses of more than 10 million USD per day.
- Statoil. Production planning in the oil and gas industry, plus decision modeling based on a detailed study of complex sales contracts.
- Norsk Hydro. A study of the importance of information flow in an oil company, with a focus on costs connected to lost information about uncertainty.
- Telenor, Norway's largest telecommunications company. A study of the importance of uncertainty in strategic planning. The focus was on educating middle management in the company after deregulation.
- Norwegian Fisheries Directorate. Studies of plant and fleet structures in the fisheries from a national perspective.
- Norwegian Meat Industry. Development of a model for collecting live animals to slaughter houses.

Invited tutorials and plenaries

- Modeling with stochastic programming. EURO XII/TIMS XXXI, Helsinki, Finland, 1992.

- Minicourse in stochastic programming at 20th Conference on the Mathematics of Operations Research, Lunteren, The Netherlands, 1995.
- Preprocessing in linear programming. Second Scandinavian Workshop on linear programming, Copenhagen, 1996.
- Introduction to stochastic programming. Tutorial program in connection with VII International Conference on Stochastic Programming, Vancouver, August 1998.
- Portfolio Management Model for an energy producer in a deregulated market. Eight Symposium of the Erasmus Center for Financial Research, Rotterdam, June 1999.
- Decision making under uncertainty: Is sensitivity analysis of any use? Tutorial at the British OR conference in Edinburgh, September 1999.
- Appropriate tools for decision making under uncertainty. Risk management in energy markets: Optimal use of financial products. Organized by Electricité de France and Sorbonne, Paris, October 1999.
- Production planning and risk management for an electricity producer in the Norwegian market. Risk management in energy markets: Optimal use of financial products. Organized by Electricité de France and Sorbonne, Paris, October 1999.
- Decision making under uncertainty: Is sensitivity analysis of any use? Danish seminar on stochastic modeling in agricultural production, Viborg, Denmark, October 2000.
- Stochastic programming in deregulated energy markets. 9th International Conference on Stochastic Programming, Berlin, August 2001.
- Decision Making under uncertainty. Is sensitivity analysis of any use? Keynote address as ORSNZ Visiting Lecturer at Twenty Naught One, the 36th annual conference of the New Zealand Operational Research Society. Christchurch, December, 2001.
- Optimization and Markets. APMOD 2002, Varenna, Italy, June 2002.
- Scenario generation: How, and why it is crucial to do it right. International conference on mathematical programming, organized by The Chinese Mathematical Programming Society, Shanghai University and The Chinese University of Hong Kong. Shanghai, China, December 2002.
- The role of stochastics in optimization: Why it is dangerous to overlook it. ECCO XVI, Molde, Norway, June 2003.
- Stochastic service network design. Or: another way to think about stochastic programming. 3rd Sino-Japanese Optimization meeting. Singapore, October, 2005.
- Stochastics in logistics – Challenges. Workshop on stochastics in logistics and transportation, Molde, June, 2006.
- Stochastic Programming in Logistics. The 11th Conference of Stochastic Programming, Vienna, Austria, August, 2007.
- The importance of stochastics in logistics modeling. The 12th International Conference of Hong Kong Society for Transportation Studies. Hong Kong, December 2007.
- Modeling uncertainty in numerical economic models – Reflections by a non-economist. The Environment, Technology and Uncertainty, Frisch Centre, Oslo, Norway, May 2008.
- Tutorial on Challenges in Stochastic Programming, OR 52, London, September 2010.
- Plenary on The value of energy storage in domestic homes: A smart grid perspective. Workshop on energy modelling at Oppdal, Norway. March 2012.
- Plenary on Understanding stochastic (mixed) integer programs, Computational Management Science 2012, London, April, 2012.
- Understanding stochastic (mixed) integer programs. Tutorial during the 5th Nordic Optimization Symposium, Trondheim, June 2012.
- Optimality structures for stochastic integer programs. Plenary at StoProg 2012, Neringa, Lithuania, July 2012.
- Semi-plenary on scenario generation, 13th International Conference on stochastic programming, Bergamo, Italy, July 2013.
- Semi-plenary on stochastic programming modeling, OR2013, Rotterdam, September 2013.
- Plenary on stochastic integer programming, APMOD 2014, Warwick, England, April 2014.
- Plenary on stochastic integer programming, AIRO Winter, Champoluc, Italy, January 2015.

- Plenary on multi-dimensional dependent random variables in vehicle routing. XXIV EURO Working Group on Locational Analysis, Edinburgh, Scotland, May 2018.
- Plenary on multi-dimensional dependent random variables in vehicle routing. XV Conference on Computational Management Science, Trondheim, Norway, May 2018.

Grants - PI unless otherwise stated

- NATO Collaborative Research Grant with Roger J-B Wets, (University of California at Davis) 1988-89. Renewed 1990-91 with Roger J-B Wets and Thorkell Helgason (University of Iceland).
- Grant from the Nordic Council of Ministers to set up a network among scientists in Nordic universities in the field of mathematical programming, 1990.
- NATO Collaborative Research Grant with Julia Higle and Suvrajeet Sen (University of Arizona) 1992-94.
- Grant from The Nordic Academy of Advanced Study for organizing a Nordic network in mathematical programming, 1991-94.
- 5 year grant from The Research Council of Norway and EnFO (an organization of energy producers) to study portfolio management in the energy sector, 1995-1999.
- 4 year grant from Telenor to study planning under uncertainty in telecommunications, 1995-1998.
- 4 year grant from The Research Council of Norway and EnFO to study end user markets in electricity, 2000-2003.
- 3 year grant from Telenor to study strategic planning in telecommunications, 2000-2002.
- 4 year grant from Gjensidige Kapitalforvaltning to study portfolio management in insurance. 1999-2001.
- Invitation to head a group of international and national scientists at the Centre for Advanced Study in Oslo, financed by the Ministry of Education and the Norwegian Academy of Science and Letters. Duration: 1 year (academic year 2000-01).
- 4 year grant from The Research Council of Norway to promote the internationalization of Molde University College. 2003-2006.
- 5 year grant from The Research Council of Norway to study vehicle routing for transportation of live animals to slaughterhouses. (With Norwegian Meat Research Center and industrial partners.) 2003-2007.
- 3 year grant from The Research Council of Norway to study stochastic integer programs. 2006-09.
- Minor grant from The Research Council of Norway to initiate research activities with China. 2005-06.
- Grant from the Grant Council of Hong Kong on the importance of uncertainty in air-freight forwarding. (With L. Leung of The Chinese University of Hong Kong and YV Hui of The City University of Hong Kong.) 2011-12.
- Grant from The Research Council of Norway on risk handling in the maritime sector. 2014-2017. (Co-PI with Roar Ådland, NHH.)
- Grant from the Chinese Research Council - NSFC - on logistics modeling. 2015-2017. (Co-PI with R. Bai, University of Nottingham, Ningbo, China.) CNY 600K.
- EEA travel grant with Brno University of Technology. 2015. (Co-PI with Pavel Popela, Brno.)
- First Cross-region collaborative grant from INFORMS Transportation Science and Logistics Society and VeRoLog, 2017. (Co-PI with Yongjia Song (US), Marlin W. Ulmer (DE) and Barrett W. Thomas (US).)
- Grant from Norwegian Centre for International Cooperation in Education on PhD education in Rural Logistics in cooperation with University of Quebec at Montreal (Professor Teodor Gabriel Crainic). 2017-18. NOK 300K.
- Grant from Norwegian Centre for International Cooperation in Education on developing a double degree PhD program in cooperation with Jiao Tong University in Shanghai. 2018-19. NOK 300K.
- Grant from the Research Council of Norway on autonomous vessels. 2018-21. NOK 9.7 Million.

Scholarships (1978-1981)

L. Meltzers høyskolefond, Elisabeth Knutsens legat, Christian Christiansen og hustru Christine Elisabeth Christiansens legat, Jubilæumslegatet av 1916, Lise og Arnfin Hejes fond, Sparebanken Rogaland.

Stipends

- Norwegian Council of Fisheries Research (NFFR), paid for 6 months stay in Austin, Texas, USA 1982.
- One-year stipend from Norwegian Research Council for Science and the Humanities, (NAVF), to finish the dr.scient degree at the University of Bergen, 1983-84.
- Stipend from ELF Petroleum Norway to partly support sabbatical leave in Grenoble, academic year 1996-97.

Organizing conferences with major responsibilities

- Main organizer of the NATO Advanced Research Workshop: Algorithms and Model Formulations in Mathematical Programming, held on behalf of The Committee on Algorithms (COAL) of the Mathematical Programming Society, Bergen, Norway, 1987.
- Nordic Conference on Marine Multispecies Research, held at Haugesund Maritime College on behalf of The Nordic Council of Ministers, August, 1989.
- Chairman of the program committee for the 1990 Nordic Meeting of The Mathematical Programming Society in Copenhagen, August.
- Chairman of the local committee for the 1992 Second Nordic Meeting of The Mathematical Programming Society in Trondheim.
- Organizer of an IFIP Workshop on “Stochastic Programming — Algorithms and Models” at Lillehammer, Norway, 1994.
- Organizer of a Nordic meeting on stochastic integer programming in Linköping, Sweden, May 1994.
- Organizer of workshop on decision making under uncertainty, financed by the Centre for Advanced Study, Norwegian Academy of Science and Letters. Molde, May 2001.
- Member of local organizing committee for the 18th International Symposium on Mathematical Programming, Copenhagen, 2003.
- Organizer of conference on Transportation and Logistics (TraLog), Molde University College, August 2004. Financed by The Research Council of Norway.
- Organizer of international workshop on Stochastics in Transportation and Logistics, Molde University College, June 2006.
- Program Chair for the 12th International Conference on Stochastic Programming, Halifax, Canada, August 2010.
- Member of Program Committee, EURO 2012, Vilnius.
- Organizer of LANCS Workshop on stochastic modelling in energy systems, Lancaster, 2012.
- Co-chair for VeRoLog 2014, Oslo, Norway.
- Member of the Steering Committee for the LOGMS conference series, 2015–
- Co-chair of Conference and Workshop on Analytics in Healthcare and Logistics Management, Chengdu, China, May 2016.
- Conference Chair at LOGMS 2017, Bergen, Norway, 2017.
- Conference Chair at Transportation Science and Logistics (INFORMS) Workshop on E-commerce and urban logistics. Hong Kong, January 2018.
- Program co-chair, 15th International Conference on Stochastic Programming, Trondheim, Norway, 2019.

Organizing conferences with minor responsibilities

- Member of the International Program Committee for EURO XII/TIMS XXXI meeting in Helsinki, 1992.
- Member of International Scientific Committee for the Sixth International Conference on Stochastic Programming, Italy, 1992.
- Member of the organizing committee for the 1993 Nordic OR Meeting in Trondheim.
- Member of the International Advisory Committee for the 15th International Symposium on Mathematical programming, Ann Arbor, 1994.
- Member of International Scientific Committee, VII International Conference on Stochastic Programming, Nahariya, Israel, 1995.
- Member of International Advisory Committee for the 16th International Symposium on Mathematical programming, Lausanne, 1997.

- Member of International Program Committee for the 18th IFIP TC7 Conference in Detroit, 1997.
- Member of International Programme Committee for the VIII International Conference on Stochastic Programming, Vancouver, 1998.
- Member of International Organizing Committee, 26th International Computers and Industrial Engineering Conference, Melbourne, Australia, 1999.
- Member of Program Committee for the 19th IFIP TC7 Conference in Cambridge, UK, 1999.
- Member of Program Committee for national meeting to celebrate that year 2000 is the year of mathematics. Trondheim, 2000.
- Member of International Program Committee for the 9th International Conference on Stochastic Programming, Berlin, 2001.
- Member of International Committee for APMOD 2002 in Italy.
- Member of organizing committee, ECCO XVI, Molde, 2003.
- Member of Program Committee for the 10th International Conference on Stochastic Programming, Tucson, 2004.
- Organizer of national conference on the transportation of live animals, Molde University College, June 2005.
- Member of scientific committee for International Workshops on Distribution Logistics, Brescia, Italy, October 2006.
- Member of the International Scientific Committee for the 11th International Conference on Stochastic Programming, Vienna, Austria, August 2007.
- Member of International Scientific Committee, Conference of Hong Kong Society for Transportation Studies, December 2008.
- Member of scientific committee, TRISTAN VII, Tromsø, Norway, June 2010.
- Member of Program Committee, APMOD 2012, Paderborn.
- Member of Scientific Committee, Odysseus 2012, Greece.
- Member of International Scientific Committee, Tristan 8, Chile, 2013.
- Member of Scientific Committee. INFORMS Transportation Science and Logistics Workshop on Handling uncertainty in planning logistics and transportation systems, Chicago, 2014.
- Member of Scientific Committee, Odysseus 2015, Ajaccio, France, 2015.
- Member of International Scientific Committee for VeRoLog 2015, Vienna, Austria, 2015.
- Member of Program Committee, Second International Conference on "Energy, Sustainability and Climate Change", Crete, Greece, 2015.
- Member of Program Committee TRISTAN 9, Aruba, 2016.
- Member of Program Committee for APMOD 2016, Brno.
- Member of Scientific Committee for INFORMS Transportation Science and Logistics Society, Chicago, July 2017.
- Member of Scientific Committee for Odysseus, Cagliari, Italy, June 2018.

Lectures at seminars/conferences

- On increased capacity in factories in Northern Norway during the Winter capelin Fisheries and Capacity adaption with uncertain quotas and variable speed. Method and example. National seminar on the Economy in the Norwegian purse-seiner fleet at Chr. Michelsen Institute, 1981.
- Risk aversion, joint ownership and resource sharing. Nordic Symposium on Resource Management Under Uncertainty at Chr. Michelsen Institute, 1983.
- Stochastic transportation problems. Third International Conference on Stochastic Programming, IIASA, Austria, 1983.
- On network structured stochastic optimization problems. NATO ASI on Computational Mathematical Programming, Bad Windsheim, Germany F.R., 1984.
- Reservoir-economic optimization. SPE Hydrocarbon Economics and Evaluation Symposium, Dallas, Texas, 1985.
- An engineering-economic petroleum reservoir model. Fifth International Conference on Mathematical Modelling, Berkeley, 1985.

- Feasibility problems in stochastic programs with network recourse. 12th International Symposium on Mathematical Programming, Boston, 1985.
- A piecewise linear upper bound on the network recourse problem. Fourth International Conference on Stochastic Programming, Prague, 1986.
- Preprocessing in stochastic programming - The case of uncapacitated networks. 13th International Symposium on Mathematical Programming, Tokyo, 1988.
- Work patterns in project scheduling. CORS/ORSA/TIMS National Meeting, Vancouver, 1989.
- Developing algorithms for a project scheduling system. NOAS 89, Nordic OR Conference, Linköping, 1989.
- Preprocessing in stochastic programming - The case of linear programs. Fifth International Conference on Stochastic Programming, Ann Arbor, Michigan, 1989.
- Structural properties of the progressive hedging algorithm. Fifth International Conference on Stochastic Programming, Ann Arbor, Michigan, 1989.
- Stochastic programming. The Norwegian Informatics Conference, Stavanger, 1989.
- Modelling quota systems in fisheries. Fishery conference ("A Barent Sea of possibilities"), Tromsø, 1990.
- Stochastic programming. A series of tutorials at a Nordic course for PhD students in Denmark, 1990.
- Stochastic programming and fisheries management. ORSA/TIMS National Meeting, Philadelphia, 1990.
- Overcoming the (apparent) problem of inconsistency in O-D matrix estimations. TRISTAN1, Montreal, Canada, 1991.
- Using ideas from stochastic programming in O-D matrix estimations. The 14th International Symposium on Mathematical Programming, Amsterdam, The Netherlands, 1991.
- O-D matrix estimation – modeling issues. IFIP Workshop, Berlin, 1992.
- Stochastic programming on networks. IFIP Workshop, Stuttgart, 1992.
- Feasibility in capacitated networks. 2nd Meeting of the Nordic Section of the Mathematical Programming Society, Trondheim, 1992.
- Stochastic programming and parallel processing. Nordic meeting under NorFA in Linköping, 1992.
- Preprocessing in stochastic programming: The case of capacitated networks. Sixth International Conference on Stochastic Programming, Udine, Italy, 1992.
- Improving bounds in stochastic programs by partitioning the support. Symposium on Applied Mathematical Programming and Modeling, Budapest, Hungary, January 1993.
- Stochastic decomposition in a parallel environment. ORSA/TIMS Joint National Meeting, Phoenix, Arizona, November 1993.
- Feasibility in capacitated networks — The effect of new information. IFIP Workshop on Stochastic Programming, Lillehammer, Norway, January 1994.
- Feasibility in uncapacitated networks — The effect of new information. 3rd Meeting of the Nordic Section of the Mathematical Programming Society, Linköping, Sweden, February 1994.
- Stochastic and integer programming — Are they any different? Nordic meeting on stochastic integer programming in Linköping, Sweden, May 1994.
- Parallel aspects of stochastic decomposition. Workshop on large scale and parallel optimization, IIASA, Austria, June 1994.
- Decentralized production planning for hydro-based electricity generation. The 15th Symposium on Mathematical Programming, Ann Arbor, Michigan, August 1994.
- Stochastic programming and option theory – An educational note. VII International Conference on Stochastic Programming, Israel, June 1995.
- Stochastic Programming in Telecommunications. The future of telecommunications, Bergen, November 1995.
- Service configurations in intelligent networks. IFIP/NSF Workshop on stochastic programming, Tucson, Arizona, January 1996.
- Service location in intelligent networks: Investigating the stochastic case. INFORMS Spring 96, Washington DC, May 1996.
- Decisions under uncertainty. Seminar on risk management in the energy sector, Trondheim, May 1996.
- Portfolio management for an insurance company. 4th Meeting of the Nordic Section of the Mathematical Programming Society, Århus, August 1996.

- Modeling service provisions in telecommunications. 18th IFIP TC7 Conference, Detroit, July 1997.
- Options – why and how. Seminar on portfolio management in the energy sector, Oslo, November 1997.
- Portfolio management for a Norwegian life insurance company. APMOD98, Cyprus, March 1998.
- Income redistribution between heterogeneous income units. Nordic MPS meeting, Molde, May 1998.
- Portfolio management in the energy sector. EURO Working Group on Finance, Paris, May 1998.
- Basis structures for multi-commodity networks. 8th Stockholm Optimization Days, June, 1998.
- Generating scenario trees. VII International Conference on Stochastic Programming, Vancouver, August 1998.
- The future of stochastic programming. VII International Conference on Stochastic Programming, Vancouver, August 1998.
- Evaluating decision models. EnFO seminar on portfolio management in the energy sector, Oslo, October 1998.
- Portfolio management in the energy sector. International Conference on Nonlinear Programming and Variational Inequalities, Hong Kong, December 1998.
- End user portfolios in the electricity market. Seminar on portfolio management in the energy sector, Oslo, October 1999.
- Portfolio model for energy production in a deregulated market. 26th International Conference on Computers and Industrial Engineering, Melbourne, December 1999.
- The stochastic resource constrained project scheduling problem: Qualitative results. 26th International Conference on Computers and Industrial Engineering, Melbourne, December 1999.
- Optimization under uncertainty in system dynamics. Poster presentation, The 18th International Conference of The System Dynamics Society, Bergen, August 2000.
- The art of modeling. What to do when you do not know the consequences. The opening of the 9th academic year at The Centre for Advanced Study, The Norwegian Academy of Science and Letters, September 2000.
- The private house as a market. New business paradigms for the e-economy. The European Commission, Brussels, September 2000.
- Decision making under uncertainty – taking a wider look. Workshop organized by the Centre for Advanced Study, the Norwegian Academy of Science and Letters, Molde, May 2001.
- Practical experience with scenario generation. Forecasting financial Markets 2001. London, June 2001.
- Fleksibilitet - hva er det for noe? Forskningsdagene i september 2001 i Kristiansund.
- Developing Ormen Lange – think options! SINTEF International Workshop on Integrated natural gas market and transportation systems. Røros, September 2001.
- Bookmobile routing and scheduling in Buskerud County, Norway. Nordic MPS'01, Copenhagen, November 2001.
- Scenario Generation - What makes a scenario tree good? IFIP/IIASA/GAMM-Workshop on Dynamic Stochastic Optimization, Laxenburg, Austria, March 2002.
- Can small end users help us reduce risk? Energy conference in Stockholm organized by Energyforum.net. September 2002.
- The end user market in electricity: New modelling challenges. Nordic MPS '02, Bergen, September 2002.
- Coping with uncertainty in a hub and spoke system. Odysseus 2003, Palermo, May 2003.
- Scenario generation in stochastic programming - what can we reasonably ask for? 18th Symposium on Mathematical Programming, Copenhagen, August 2003.
- Planning under uncertainty: How do you measure the quality of a model? 3rd SINTEF International Workshop on Integrated gas market and transportation systems, Trondheim, November, 2003.
- On scenario generation and markets. 3rd SINTEF International Workshop on Integrated gas market and transportation systems, Trondheim, November, 2003.
- Stochastic network design — initial investigations. IFIP/SOM Workshop on Stochastic Integer Programming, Groningen, The Netherlands, May 2004.
- Stochastic Service Network Design. TRISTAN V, Guadeloupe, French West Indies, June 2004.
- Evaluation of scenario-generation methods in stochastic programming. The Tenth International Conference on Stochastic Programming, Tucson, Arizona, October 2004.
- Supply base management. Nordic MPS'04, Norrköping, Sweden, October 2004.

- Robustness and flexibility in service network design. Workshop on Mathematical Models for Optimizing Transportation Services, Auckland, New Zealand, April 2005.
- Stochastic service network design. Or: another way to think about stochastic programming. 10th Meeting of the Nordic Section of the Mathematical Programming Society, Copenhagen, April 2006.
- Stochastic service network design. Or: Understanding when you cannot solve. CORS / Optimization Days, Montreal, May 2006.
- Stochastic network design – is there a way forward? Odysseus 2006, Altea, Spain, May 2006.
- Supply base management. Modeling, Optimization, and Simulation Technologies Workshop, Columbus, Ohio, November 2006
- Stochastic programming and the option of doing it differently. INFORMS Annual Meeting, Pittsburgh, PA, November, 2006.
- Stochastic integer programming – is there a way forward? Workshop on optimization, City University of Hong Kong, February, 2007.
- Stochastic programming, games and market power. Workshop on optimization, Hong Kong Polytechnic University, May, 2007
- Service network design: a deterministic primal heuristic. TRISTAN VI, Thailand, June 2007.
- Optimality structures in stochastic integer programming. 11th International Conference on Stochastic programming, Vienna, Austria, August 2007.
- Stochastics in discrete logistics model. What can we do? IEEM 2007, Singapore, December 2007.
- Oil supply to Nepal - Steady state inventory. INFORMS, Washington DC, October 2008.
- Deterministic methods for stochastic programs. INFORMS, Washington DC, October 2008.
- Modeling consumer directed substitution. The 13th International Conference of Hong Kong Society for Transportation Studies. Hong Kong, December 2008.
- Single commodity network design. International Symposium on Mathematical Programming, Chicago, August 2009.
- Single commodity stochastic network design. OR51, Warwick, September 2009.
- Single commodity network design. TRISTAN VII, Tromsø, May 2010.
- Understanding optimal solutions in stochastic integer programming. XII International Conference on Stochastic Programming, Halifax, Canada, August 2010.
- A new heuristic for the stochastic facility layout problem. OR53, Nottingham, UK, September 2011.
- Stochastic facility layout. INFORMS 2011, Charlotte, NC, November 2011.
- Stochastics in air-freight forwarding. The 16th International Conference of Hong Kong Society for Transportation Studies. Hong Kong, December 2011.
- Stochastics in air-freight forwarding. APMOD 2012, Paderborn, March 2012.
- Stochastic network design. Odysseus 2012, Mykonos, Greece, May 2012.
- Electrical storage in domestic homes. 5th Nordic Optimization Symposium, Trondheim, June 2012.
- The value of energy storage in domestic homes: A smart grid perspective. EURO 2012, Vilnius, Lithuania, July 2012.
- Scenario generation: Why do we care? Seminar on scenario generation in Vaduz, Lichtenstein, January 2013.
- Stochastic network design. 10th CEMS Research Seminar on Supply Chain Management, Riezlern, Austria, January 2013.
- Stochastic Facility Layout. NOW 2013, Siracusa, Italy, June 2013.
- Stochastic network design with rerouting. ROUTE 2014, Copenhagen, Denmark, June 2014.
- Stochastic network design with rerouting. VeRoLog 2014, Oslo, Norway, June 2014.
- Stochastic Facility Layout. TSL Workshop, Chicago, June 2014.
- End-user electricity storage. Energy Workshop, Hardingasete, Norway, August 2014.
- Stochastic service network design. LOT 2014, Molde, Norway, September 2014.
- End-user electricity storage. FIBE 2015, Bergen, Norway, January 2015.
- Stochastic network design. Odysseus 2015, Ajaccio, France, June 2015.
- Stochastic facility layout. VeRoLog 2015, Vienna, Austria, June 2015.
- Electricity storage. Second International Conference on "Energy, Sustainability and Climate Change" ESCC 2015, Crete, Greece, June 2015.

- Stochastic service network design. LOGMS 2015, Hong Kong, August 2015.
- Stochastic facility layout. 20th Conference of Hong Kong Society of Transportation Studies, Hong Kong, December 2015.
- Fuel management in the light of SECAs. LOGMS 2016, Sydney, Australia, June 2016.
- Multi-commodity stochastic network design. INFORMS, Nashville, USA, November 2016.
- Vehicle routing with stochastic dependent travel times. NOW, Rome, June 2017.
- Vehicle routing with stochastic dependent travel times. First TSL Conference, Chicago, July 2017.
- Handling high-dimensional correlated random variables in stochastic vehicle routing. 6th Workshop of TSL, Hong Kong, January 2018.
- Handling high-dimensional dependent random variables in stochastic vehicle routing. *Smart Logistics and Supply Chain Management*, Chengdu, China, January 2018.
- Handling high-dimensional correlated random variables in stochastic vehicle routing. Odysseus 2018, Cagliari, Italy, June 2018.

Guest lectures

- Dept. of Mathematics, Linköping Institute of Technology, 1983.
- Dept. of Economics, University of Bergen, 1985, 1986.
- Dept. of Mathematics, University of Oslo, 1985.
- Center for Cybernetic Studies, University of Texas at Austin, 1985.
- Dept. of Industrial and Operations Engineering, The University of Michigan, 1985, 1988.
- Dept. of Mathematics, University of Washington, 1985.
- Dept. of Informatics, University of Bergen, 1988, 1995, 2001.
- Dept. of Civil Engineering and Operations Research, Princeton University, 1988, 1992.
- Science Institute, University of Iceland, 1988.
- IBM Watson Research Center, New York, 1989, 1991.
- Dept. of Economics and Industrial Management, The Norwegian Institute of Technology, 1990.
- RUTCOR, Rutgers University, New Jersey, 1990.
- The Norwegian School of Management, Seminar at Gran Canaria, 1991.
- Dept. of Systems and Industrial Engineering, The University of Arizona, Tucson, 1992.
- CORE, Université Catholique de Louvain, 1993.
- Department of Mathematics, Linköping Institute of Technology, 1993. (An 8 hours course over two days in stochastic programming.)
- Institut für Entscheidungstheorie und Unternehmensforschung, Universität Karlsruhe, 1993.
- Department of Mathematics, University of Copenhagen, 1993, 1998.
- Department of Basic Subjects, Beijing Agricultural Engineering University, China, 1995.
- Department of Mathematics, Nanjing University, China, 1995.
- Suzhou Railway Teachers' College, China, 1995.
- Telenor, Oslo, 1995, 1997.
- Séminaire de Statistique et Modélisation Stochastique, Université Joseph Fourier et Institut National Polytechnique de Grenoble, 1996.
- Ecole Nationale Supérieure de Génie Industriel, Institut National Polytechnique de Grenoble, 1996.
- Logilab, Université Genève, 1996.
- Economics Faculty, Erasmus University, Rotterdam, 1996.
- Management School, Imperial College, London, 1996, 2010.
- Ecole Nationale Supérieure d'Ingenieurs Electriciens de Grenoble, Institut National Polytechnique de Grenoble, 1997.
- Université Paul Sabatier, Toulouse, 1997.
- University of Cyprus, Nicosia, 1997, 2001.
- University of Århus, 1997.
- University of Odense, 1998.
- University of Edinburgh, 1999 (two lectures).
- Université Libre de Bruxelles, 1999.

- National University of Singapore, 1999.
- Nanyang Technological University, Singapore, 1999.
- University of Canterbury, Christchurch, New Zealand, 1999.
- Molde University College, 2000.
- Red Eletrica National, Porto, Portugal, 2000.
- Department of Applied Mathematics, University of Duisburg, Germany, 2000.
- Department of Applied Mathematics, Humboldt University, Germany, 2000
- Department of Engineering Science, University of Auckland, New Zealand, 2001, 2004.
- Victoria University of Wellington, New Zealand, 2001.
- Waikato University, Hamilton, New Zealand, 2001.
- INRIA Lorraine, Metz, France, 2002.
- University of Zilina, Slovakia, 2002.
- University of Science and Technology of Suzhou, China, 2002.
- CIRANO, Montreal, Canada, 2003.
- CRT, University of Montreal, 2003.
- Charles University, Prague, The Czech Republic, 2003.
- Department of mathematics, University of Edinburgh, Scotland, 2004, 2009.
- Department of statistics and operations research, University of Malta (5 lectures), 2004.
- China Association for Science and Technology, Suzhou (2 lectures), 2004.
- Brno University of Technology, Czech Republic, 2004.
- Dalhousie University, Halifax, Canada, 2006.
- University of Iowa, 2006.
- Columbia University, New York, 2006.
- IBM Watson Research Center, Yorktown Heights, New York, 2006.
- University of Texas at Austin, 2006.
- University of Maryland, 2006.
- University of Montreal, 2006.
- Faculty of Business Administration, Chinese University of Hong Kong, 2007.
- Department of systems engineering and engineering management, Chinese University of Hong Kong, 2007.
- Université de Québec à Montréal, 2007.
- Tsinghua University, Beijing, 3 lectures in 2007, 2 in 2008, 2 in 2010, 1 in 2013.
- Department of Civil Engineering, The Hong Kong University of Science and Technology, 2008.
- University of New South Wales, Sydney, Australia, 2008.
- University of Dortmund, Germany, 2008.
- University of Lancaster, UK, 2008.
- University of Southampton, 2009, 2011.
- University of Nottingham, 2009.
- University of Cardiff, 2009.
- JiaoTong University, Xi'an, China, 2 lectures, October 2011.
- Hong Kong Polytechnic, December 2011.
- Chinese University of Hong Kong, March 2013.
- Beijing Foreign Studies University, April 2013.
- Informatics, University of Bergen, April 2013.
- Aarhus Business School, Denmark, June 2013.
- SINTEF IKT, Oslo, September 2013.
- University of the Basque Country, Bilbao, Spain, October 2013.
- Technical University of Brno, Czech Republic, October 2014.
- University of Science and Technology Beijing, October 2014.
- Tsinghua University, Beijing, December 2014.
- University of Southern Denmark, Odense, April 2015.
- Louvain-la-Neuve, Belgium, April 2015.
- JiaoTong, Shanghai, China, June 2016.
- University of Vienna, Austria, October 2016.

- Business School of Sichuan University, Chengdu, China, July 2017.
- Hong Kong Polytechnic University, January 2018.
- JiaoTong, Shanghai, China, April 2018..

Doctoral evaluation committees

Birger Moe	Trondheim, 1991. <i>Stochastic methods in energy planning</i> .
Claus Carøe	Copenhagen, 1998. <i>Stochastic integer programming</i>
Pavel Popela	Prague, 1998. <i>Stochastic programming</i> .
Thore Jonsbråten	Bergen, 1998. <i>OR in the petroleum sector</i> .
Karen Lau	Sydney, 1999. <i>Stochastic quadratic programming</i> .
Lyès Benyoucef	Grenoble, 2000. <i>Synchronous delivery in the car industry</i> .
Valentina Bosetti	Milano, 2002. <i>Stochastic programming and decision theory in the management of natural resources</i> .
Mark C. Stewart	Christchurch, New Zealand, 2003. <i>Stochastic integer programming in telecommunications</i> .
Fredrik Altenstedt	Gothenburg, 2003. <i>Stochastic programming and finance</i> .
Leif Olsson	Umeå, Sweden, 2004. <i>Stochastic programming in forestry</i> .
Jacob Lemming	Copenhagen, Denmark, 2004. <i>Risk and electricity markets</i> .
Babul Hasan	Christchurch, New Zealand, 2007. <i>Production planning in commercial fisheries</i> .
Trine Krogh Kristoffersen	Aarhus, Denmark, 2007. <i>Stochastic programming in power systems</i> .
Ziming Guan	Auckland, New Zealand, 2008. <i>Stochastic programming in a supply chain</i> .
Helgard Raubenheimer	North-West University, South Africa, 2009. <i>Liquid asset portfolios</i> .
Arne Strauss	Lancaster University, 2009. <i>Revenue management</i> .
Yu Yu	University of Edinburgh, 2009. <i>Stochastic ship fleet routing</i> .
Veronica Araoz Castillo	Norwegian School of Economics, 2012. <i>Pricing in non-convex electricity markets</i> .
Stephen Starkey	Christchurch, New Zealand, 2014. <i>Wholesale Water Scheduling Under Uncertainty</i> .
Matteo Cagnolari	Bergamo, Italy, 2017. <i>The Value of the Right Distribution</i> .

Evaluation Committees for positions

Dosentur (Associate Professor) in Business Administration, Molde Regional College, 1992.
 Professorship in business administration, NTH, 1992.
 Amanuensis in statistics, Rogaland Regional College, 1992.
 “Docentur” in optimization, Linköping, 1993.
 Amanuensis in Business Studies, Stord/Haugesund College, 1995.
 Professorship in production economics, NTNU, 1996.
 Professorship in business administration, NTNU, 1996.
 Professorship in computer science, Stavanger College, 1999.
 Amanuensis in economics, Stord/Haugesund College, 1999.
 College lecturer in logistics, The Norwegian Defense, 2002.
 Associate professor, information science, University of Bergen, 2004.
 Associate professor in logistics, The Norwegian Defence, 2005.
 Professor in Management Science, University of Canterbury, New Zealand, 2005.
 Promotion cases: USA(10), Canada (3), Israel (1), UK (3), NZ (1), Switzerland (1), Hong Kong (3).

Publications (not refereed). (If only English title, the paper is written in English)

- 120 Betydningen av råstofftype og kapasitetsutnyttning på sildemelfabrikkenes totalresultat. (The economic effect of different species mixes and capacity usage in the fish-meal industry.) *Fiskets Gang* 68 (1982) 451–452.
- 121 Stordriftsfordeler i sildemelindustrien. (Economics of scale in the fish-meal industry.) *Fiskets Gang* 68 (1982) 449–450.
- 122 Økonomien i en nedbygget sildenæring. (The economy in a reduced fish-meal industry.) *Fiskets Gang* 68 (1982) 369–371.

- 123 Utjamning og utsetjing av haustloddefisket. (Stretching and delaying the fall capelin fishery.) *Fiskets Gang* 70 (1984) 137–138. (With S.D. Flåm, R. Hannesson and S. Tjelmeland.)
- 124 Generating production profiles for an oil field. In *Mathematical Modelling in Science and Technology*. Proceedings of Fifth ICMM, University of California, Berkeley (eds. X.J.R. Avula, G. Leitman, C.D. Mote, Jr. and E.V. Rodin), Pergamon Press, New York 1987, pp. 681–686. (With A. Nystad and C. Helgesen, Chr. Michelsen Institute, Bergen.)
- 125 A standard format for multiperiod stochastic linear programs. *COAL Newsletter* 17 (1987) 1–19. (With J.R. Birge, M.A.H. Dempster, H. Gassmann, E. Gunn and A.J. King.)
- 126 Parallel challenges in stochastic programming. Proceedings of NIK'89 – The Norwegian Informatics Conference, 51–60.
- 127 Modelling quota systems. Proceedings of the conference Multispecies management - A Barents Sea of possibilities, 45–63. Tromsø (1990). (With Thorkell Helgason).
- 128 Stochastic programming on networks. Proceedings from *Statistical Methods for Decision Processes*, Daimler-Benz/IFIP Workshop, Nürtingen, Germany (1992), 107–137.
- 129 Business education in Norway. Proceedings from a conference on Erasmus and Socrates in Business Studies, organized by the European Commission, DGXII, Rotterdam (1995) 177–201.
- 130 Feasibility in bipartite uncapacitated networks. In *Essays in honour of Bjørn Nygreen on his 50th birthday*, Department of Managerial Economics and Operations Research, NTNU (eds. E. Matson, A. Tomasgard, E. Meistad and S. Dye), 1996, pp. 211–230. (With Shane Dye and Asgeir Tomasgard.)
- 131 Kapitalforvaltning i et livselskap. (Portfolio management in a life insurance company.) *Økonomi og ledelse* 2 (1997) 71–84. (With K. Høyland, E. Ranberg and S. Westgaard.)
- 132 Portfolio management in a deregulated hydropower based electricity market. In E. Broch, D. K. Lysne, N. Flatabø and E. Helland-Hansen (eds.) *Hydropower '97*, A.A. Balkema, Amsterdam, 1997. (With Stein-Erik Fleten and William Ziemba.)
- 133 Power scheduling with power contracts. Proceedings of the fifth meeting of the Nordic MPS, Molde, 1998. (With Stein-Erik Fleten.)
- 134 En fengslende mattetime. In "Teller matte?", a book on the fun of mathematics for high school students, issued by Norsk Matematikkråd, 82–84, 1999. (Subject: Prisoner's dilemma.) (With Nils Kristian Rossing and Anne Karin Wallace).
- 135 Produksjonsplanlegging og risikostyring i et deregulert kraftmarked med finansielle instrumenter. (Production planning and risk management in a deregulated power market with financial instruments.) *Magma* 4, No 5 (2001) 22–33. (With Stein-Erik Fleten and Asgeir Tomasgard.)
- 136 Bookmobile routing and scheduling in Buskerud County. Proceedings of Twenty Naught One, the 36th annual meeting of the New Zealand Operational Research Society, Christchurch, New Zealand, November, 2001. (With Les Foulds, John Wilson and Liv Sagvolden).
- 137 Exploring beliefs in modeling decision making: optimising and cost cutting versus risk and vulnerability. Proceedings of the 5th Conference on Technology, Policy and Innovation "Critical Infrastructures", in Delft, The Netherlands, June 26-29, 2001. (With Jan Hovden and Ragnar Rosness.)
- 138 Power generation planning and risk management in a liberalized market. Proceedings of IEEE Porto Powertech 2001. (With T. Bjørkvoll, S.-E. Fleten, M. P. Nowak, and A. Tomasgard.)
- 139 Business analytics and big data — nye navn på gamle fag? (Business analytics and big data — new names on old subjects?) *Praktisk økonomi og finans*, Volume 31 (3) (2015) 196–201. (With Jonas Andersson.)
- 140 Business Analytics - hvordan går vi videre med dette som handleshøyskole? (Business analytics – How do we proceed as a business school?) *Praktisk økonomi og finans*, Volume 33 (3) (2017) 337–343. (With Jonas Andersson.)
- 141 Logistikk og konkurranseevne. *Skipsrevyen* April (2018) 70–72.

Newspaper articles

- 142 Tilbake til overforbruksmåleren! *Adresseavisen*, November 20, 2002. (With Stein-Erik Fleten and Erling Pettersen).
- 143 Det er dumt å spare på strømmen når det er kaldt. *Romsdals Budstikke*, February 22, 2003.