Thomas M. Surowiec

Chief Research Scientist, Simula Research Laboratory
Deputy Centre Director, SURE-AI

Simula Research Laboratory
Kristian Augusts gate 23, 0164 Oslo, Norway
thomas.surowiec@gmail.com
thomas-surowiec.github.io
ORCID 0000-0003-2473-4984

Professional Experience

2022–	**Chief Research Scientist** Dept. of Scientific Computing and Numerical Analysis, Simula Research Laboratory	Oslo, Norway
2024–25, 2026–	**Acting Head of Department** Dept. of Scientific Computing and Numerical Analysis, Simula Research Laboratory Two terms of about ten months; department of about 20 researchers and students. Budget and expenditures, strategy with senior management, staff appraisals and recommendations for raises and promotions.	Oslo, Norway
2025–	**Deputy Centre Director** SURE-AI: The Norwegian Centre for Sustainable, Risk-Averse, and Ethical AI Second in the centre's leadership and one of the architects of its research programme; scientific direction, recruitment, partner network, reporting, and budget authority.	Oslo, Norway
2025	**J.T. Oden Faculty Fellow (visiting)** Oden Institute for Computational Engineering and Sciences, The University of Texas at Austin	Austin, TX, USA
2023–	**Visiting Scholar** Division of Applied Mathematics, Brown University	Providence, RI, USA
2016–2022	**Professor (W2) of Mathematical Optimization** Dept. of Mathematics and Computer Science, Philipps-Universität Marburg	Germany
2014–2016	**Assistant Professor (W1) of Nonsmooth Optimization and Variational Analysis** Dept. of Mathematics, Humboldt-Universität zu Berlin	Germany
2009–2014	**Research Associate (Postdoc)** Dept. of Mathematics, Humboldt-Universität zu Berlin	Germany
2006–2009	**Research Assistant** Dept. of Mathematics, Humboldt-Universität zu Berlin	Germany
2004–2006	**Teaching Assistant** Dept. of Mathematical Sciences, Stevens Institute of Technology	Hoboken, NJ, USA

Education

2010	**PhD (Dr. rer. nat.) in Mathematics**, Humboldt-Universität zu Berlin
2006	**M.S. in Stochastic Systems**, Stevens Institute of Technology, Hoboken, NJ
2004	**B.S. in Mathematical Sciences**, Stevens Institute of Technology, Hoboken, NJ

Research Areas

Variational analysis and nonsmooth analysis in function spaces; variational inequalities, free boundary problems, and equilibrium problems

Numerical analysis of constrained variational problems; structure-preserving finite element methods (Proximal Galerkin, latent variable proximal point methods)

Optimal control of partial differential equations and variational inequalities

Stochastic optimization in infinite dimensions: risk measures, statistical consistency, and Monte Carlo approximation

Mathematical optimization for trustworthy AI: risk-aware and explainable inference, stability of statistical estimators, and energy-efficient algorithms with guarantees

Applications in topology optimization, liquid crystals, semiconductors, and microfluidics

Honors and Prizes

2025 **Langtangen Prize**
With B. Keith, for "Proximal Galerkin" (*Found. Comput. Math.*), "for the development of a radically new approach to the numerical solution of variational inequalities." Awarded annually by the Ridgway Scott Foundation for outstanding papers on the foundations of numerical simulation.

2025 **J.T. Oden Faculty Fellowship**
Oden Institute for Computational Engineering and Sciences, UT Austin

2020 **Charles Broyden Prize**
With P.E. Farrell and M. Croci, for the best paper of the year in *Optimization Methods and Software*; past recipients include Yu. Nesterov, J. Nocedal, and A. Nemirovski.

Research Funding

2026–2029 **LaVa: The Latent Variable Proximal Point Method**
Principal Investigator · Research Council of Norway, FRIPRO · 12 million NOK
Norway's open competition for ground-breaking research across all disciplines; only proposals rated 6 or 7 (of 7) on every criterion are eligible, and 21% were funded in 2024. **LaVa received the maximum score of 7 on every criterion.** Funds a postdoc, a PhD student, and two international workshops.

2027–2029 **PRAGMA: The Proximal Galerkin Method: Adaptivity and Preconditioning**
Principal Investigator · Research Council of Norway · 6.3 million NOK
Companion grant to LaVa funding a two-year stay at Simula by L. Zikatanov (Penn State) from April 2027.

2025–2030 **SURE-AI: The Norwegian Centre for Sustainable, Risk-Averse, and Ethical AI**
Deputy Centre Director; Leader of Work Package 5 (Optimization in AI) · Research Council of Norway · 200 million NOK + 80 million NOK in kind
National centre for the mathematical foundations of trustworthy AI, with 17 partners including ETH Zürich, EPFL, Imperial, UCL, UC Berkeley, and USC.

2019–2022 **Constrained Mean Field Games: Analysis and Algorithms**
PI (with M. Hintermüller) · DFG

2016–2021 **Generalized Nash Equilibrium Problems with Partial Differential Operators**
PI (with M. Hintermüller) · DFG

2014–2017 **Optimization of Strained Germanium Microbridges**
Joint PI (with M. Hintermüller, A. Mielke, M. Thomas) · Einstein Center for Mathematics Berlin

Selected Publications

Structure-preserving methods for variational inequalities and nonsmooth equations

Proximal Galerkin: A structure-preserving finite element method for pointwise bound constraints
B. Keith, **T.M. Surowiec**. *Found. Comput. Math.* 26(1), 385–481 (2026).
Langtangen Prize 2025.

The latent variable proximal point algorithm for variational problems with inequality constraints
J.S. Dokken, P.E. Farrell, B. Keith, I.P.A. Papadopoulos, **T.M. Surowiec**. *Comput. Methods Appl. Mech. Engrg.* 445, 118181 (2025).

Deflation for semismooth equations
P.E. Farrell, M. Croci, **T.M. Surowiec**. *Optim. Methods Softw.* 35(6), 1248–1271 (2020).
Charles Broyden Prize 2020.

Optimal control of PDEs and variational inequalities

Analysis of the SiMPL method for density-based topology optimization
B. Keith, D. Kim, B. Lazarov, **T.M. Surowiec**. *SIAM J. Optim.* 35(2), 1134–1164 (2025).

Optimal control of the Landau–de Gennes model of nematic liquid crystals
T.M. Surowiec, S.W. Walker. *SIAM J. Control Optim.* 61(4), 2546–2570 (2023).

A bundle-free implicit programming approach for a class of elliptic MPECs in function space
M. Hintermüller, **T.M. Surowiec**. *Math. Program.* 160, 271–305 (2016).

Generalized Nash equilibrium problems in Banach spaces: theory, Nikaido–Isoda-based path-following methods, and applications

M. Hintermüller, **T.M. Surowiec**, A. Kämmler. *SIAM J. Optim.* 25(3), 1826–1856 (2015).

Optimization under uncertainty in infinite dimensions

Asymptotic consistency for nonconvex risk-averse stochastic optimization with infinite dimensional decision spaces

J. Milz, **T.M. Surowiec**. *Math. Oper. Res.* 49(3), 1403–1418 (2024).

A primal-dual algorithm for risk minimization

D.P. Kouri, **T.M. Surowiec**. *Math. Program.* 193(1), 337–363 (2022).

Risk-averse PDE-constrained optimization using the conditional value-at-risk

D.P. Kouri, **T.M. Surowiec**. *SIAM J. Optim.* 26(1), 365–396 (2016).

Complete List of Publications

Refereed journal articles, conference papers, and book chapters

1. M. Pettersen, N. Haug, J. Bergli, **T.M. Surowiec**, M.E. Lepperød. Exponential map models as an interpretable framework for generating neural spatial representations. *Advances in Neural Information Processing Systems (NeurIPS 2026)*, to appear (accepted as poster; acceptance rate 25.7%). Preprint: doi:10.1101/2025.09.25.678504
2. A.S. Javeed, D.P. Kouri, **T.M. Surowiec**. Inference as risk identification. *Comput. Manag. Sci.* 23(2), 34 (2026). doi:10.1007/s10287-026-00572-7
3. B. Keith, **T.M. Surowiec**. Proximal Galerkin: A structure-preserving finite element method for pointwise bound constraints. *Found. Comput. Math.* 26(1), 385–481 (2026). doi:10.1007/s10208-024-09681-8
4. A. Alphonse, C. Geiersbach, M. Hintermüller, **T.M. Surowiec**. Risk-averse optimal control of random elliptic variational inequalities. *ESAIM Control Optim. Calc. Var.* 31, 71 (2025). doi:10.1051/cocv/2025045
5. D. Kim, B. Lazarov, **T.M. Surowiec**, B. Keith. A simple introduction to the SiMPL method for density-based topology optimization. *Struct. Multidiscip. Optim.* 68(4), 74 (2025). doi:10.1007/s00158-025-04008-9
6. B. Keith, D. Kim, B. Lazarov, **T.M. Surowiec**. Analysis of the SiMPL method for density-based topology optimization. *SIAM J. Optim.* 35(2), 1134–1164 (2025). doi:10.1137/24M1708863
7. J.S. Dokken, P.E. Farrell, B. Keith, I.P.A. Papadopoulos, **T.M. Surowiec**. The latent variable proximal point algorithm for variational problems with inequality constraints. *Comput. Methods Appl. Mech. Engrg.* 445, 118181 (2025). doi:10.1016/j.cma.2025.118181
8. M. Hintermüller, M. Theiß, **T.M. Surowiec**. On a differential generalized Nash equilibrium problem with mean field interaction. *SIAM J. Optim.* 34(3), 2005–2030 (2024). doi:10.1137/22M1489952
9. W. Römisch, **T.M. Surowiec**. Asymptotic properties of Monte Carlo methods in elliptic PDE-constrained optimization under uncertainty. *Numer. Math.* 156(5), 1887–1914 (2024). doi:10.1007/s00211-024-01436-5
10. J. Milz, **T.M. Surowiec**. Asymptotic consistency for nonconvex risk-averse stochastic optimization with infinite dimensional decision spaces. *Math. Oper. Res.* 49(3), 1403–1418 (2024). doi:10.1287/moor.2022.0200
11. P. Manns, **T.M. Surowiec**. On binary optimal control in $H^s(0,T)$, $s < 1/2$. *C. R. Math. Acad. Sci. Paris* 361, 1531–1540 (2023). doi:10.5802/crmath.507
12. **T.M. Surowiec**, S.W. Walker. Optimal control of the Landau–de Gennes model of nematic liquid crystals. *SIAM J. Control Optim.* 61(4), 2546–2570 (2023). doi:10.1137/22M1506158
13. M. Hashemi, R. Herzog, **T.M. Surowiec**. Optimal control of the stationary Kirchhoff equation. *Comput. Optim. Appl.* 85(2), 479–508 (2023). doi:10.1007/s10589-023-00463-6
14. D.P. Kouri, M. Staudigl, **T.M. Surowiec**. A relaxation-based probabilistic approach for PDE-constrained optimization under uncertainty with pointwise state constraints. *Comput. Optim. Appl.* 85(2), 441–478 (2023). doi:10.1007/s10589-023-00461-8
15. D.B. Gahururu, M. Hintermüller, **T.M. Surowiec**. Risk-neutral PDE-constrained generalized Nash equilibrium problems. *Math. Program.* 199(2), 1287–1337 (2023). doi:10.1007/s10107-022-01800-z
16. S. Dahlke, H. Harbrecht, **T.M. Surowiec**. A wavelet-based approach for the simulation and optimal control of non-local operator equations. *SIAM J. Sci. Comput.* 44(4), A2691–A2708 (2022). doi:10.1137/20M1350790
17. D.P. Kouri, **T.M. Surowiec**. A primal-dual algorithm for risk minimization. *Math. Program.* 193(1), 337–363 (2022). doi:10.1007/s10107-020-01608-9

18. S. Dahlke, **T.M. Surowiec**. Wavelet-based approximations of pointwise bound constraints in Lebesgue and Sobolev spaces. *IMA J. Numer. Anal.* 42(1), 417–439 (2022). doi:10.1093/imanum/draa066

19. M. Hintermüller, **T.M. Surowiec**. Generalized Nash equilibrium problems with partial differential operators: theory, algorithms, and risk aversion. In: *Non-Smooth and Complementarity-Based Distributed Parameter Systems*, Internat. Ser. Numer. Math., Springer (2022). doi:10.1007/978-3-030-79393-7

20. M. Hintermüller, S.-M. Stengl, **T.M. Surowiec**. Uncertainty quantification in image segmentation using the Ambrosio–Tortorelli approximation of the Mumford–Shah energy. *J. Math. Imaging Vision* 63, 1095–1117 (2021). doi:10.1007/s10851-021-01034-2

21. P.E. Farrell, I.P.A. Papadopoulos, **T.M. Surowiec**. Computing multiple solutions of topology optimization problems. *SIAM J. Sci. Comput.* 43(3), A1555–A1582 (2021). doi:10.1137/20M1326209

22. M. Hoffhues, W. Römisch, **T.M. Surowiec**. On quantitative stability in infinite-dimensional optimization under uncertainty. *Optim. Lett.* 15, 2733–2756 (2021). doi:10.1007/s11590-021-01707-2

23. S. Garreis, **T.M. Surowiec**, M. Ulbrich. An interior-point approach for solving risk-averse PDE-constrained optimization problems with coherent risk measures. *SIAM J. Optim.* 31(1), 1–29 (2021). doi:10.1137/19M125039X

24. D.P. Kouri, **T.M. Surowiec**. Risk-averse optimal control of semilinear elliptic PDEs. *ESAIM Control Optim. Calc. Var.* 26, 53 (2020). doi:10.1051/cocv/2019061

25. D.P. Kouri, **T.M. Surowiec**. Epi-regularization of risk measures. *Math. Oper. Res.* 45(2), 774–795 (2020). doi:10.1287/moor.2019.1013

26. P.E. Farrell, M. Croci, **T.M. Surowiec**. Deflation for semismooth equations. *Optim. Methods Softw.* 35(6), 1248–1271 (2020). doi:10.1080/10556788.2019.1613655

27. L. Adam, M. Hintermüller, D. Peschka, **T.M. Surowiec**. Optimization of a multiphysics problem in semiconductor laser design. *SIAM J. Appl. Math.* 79(1), 257–283 (2019). doi:10.1137/18M1179183

28. L. Adam, M. Hintermüller, **T.M. Surowiec**. A semismooth Newton method with analytical path-following for the H^1-projection onto the Gibbs simplex. *IMA J. Numer. Anal.* 39(3), 1276–1295 (2019). doi:10.1093/imanum/dry034

29. L. Adam, M. Hintermüller, **T.M. Surowiec**. A PDE-constrained optimization approach for topology optimization of strained photonic devices. *Optim. Eng.* 19(3), 521–557 (2018). doi:10.1007/s11081-018-9394-5

30. **T.M. Surowiec**. Numerical optimization methods for the optimal control of elliptic variational inequalities. In: H. Antil, D.P. Kouri, M.-D. Lacasse, D. Ridzal (eds.), *Frontiers in PDE-Constrained Optimization*, IMA Vol. Math. Appl. 163, Springer (2018). doi:10.1007/978-1-4939-8636-1_4

31. D.P. Kouri, **T.M. Surowiec**. Existence and optimality conditions for risk-averse PDE-constrained optimization. *SIAM/ASA J. Uncertain. Quantif.* 6(2), 787–815 (2018). doi:10.1137/16M1086613 Corrigendum: *ibid.* (2022), doi:10.1137/21M143251X

32. M. Hintermüller, **T.M. Surowiec**. On the directional differentiability of the solution mapping for a class of variational inequalities of the second kind. *Set-Valued Var. Anal.* 26(3), 631–642 (2018). doi:10.1007/s11228-017-0408-9

33. H. Antil, M. Hintermüller, R.H. Nochetto, **T.M. Surowiec**, D. Wegner. Finite horizon model predictive control of electrowetting on dielectric with pinning. *Interfaces Free Bound.* 19(1), 1–30 (2017). doi:10.4171/IFB/375

34. M. Hintermüller, **T.M. Surowiec**. A bundle-free implicit programming approach for a class of elliptic MPECs in function space. *Math. Program.* 160(1–2), 271–305 (2016). doi:10.1007/s10107-016-0983-9

35. D.P. Kouri, **T.M. Surowiec**. Risk-averse PDE-constrained optimization using the conditional value-at-risk. *SIAM J. Optim.* 26(1), 365–396 (2016). doi:10.1137/140954556

36. M. Hintermüller, **T.M. Surowiec**, A. Kämmler. Generalized Nash equilibrium problems in Banach spaces: theory, Nikaido–Isoda-based path-following methods, and applications. *SIAM J. Optim.* 25(3), 1826–1856 (2015). doi:10.1137/14096829X

37. M. Hintermüller, A. Laurain, C. Löbhard, C.N. Rautenberg, **T.M. Surowiec**. Elliptic mathematical programs with equilibrium constraints in function space: optimality conditions and numerical realization. In: *Trends in PDE Constrained Optimization*, Internat. Ser. Numer. Math. 165, pp. 133–153, Springer (2014). doi:10.1007/978-3-319-05083-6_9

38. M. Hintermüller, B.S. Mordukhovich, **T.M. Surowiec**. Several approaches for the derivation of stationarity conditions for elliptic MPECs with upper-level control constraints. *Math. Program.* 146(1–2), 555–582 (2014). doi:10.1007/s10107-013-0704-6

39. M. Hintermüller, **T.M. Surowiec**. A PDE-constrained generalized Nash equilibrium problem with pointwise control and state constraints. *Pac. J. Optim.* 9(2), 251–273 (2013).

40. R. Henrion, J.V. Outrata, **T.M. Surowiec**. On regular coderivatives in parametric equilibria with non-unique multipliers. *Math. Program.* 136(1), 111–131 (2012). doi:10.1007/s10107-012-0553-8

41. R. Henrion, J.V. Outrata, **T.M. Surowiec**. Analysis of M-stationary points to an EPEC modeling oligopolistic competition in an electricity spot market. *ESAIM Control Optim. Calc. Var.* 18, 295–317 (2012). doi:10.1051/cocv/2011003

42. M. Hintermüller, **T.M. Surowiec**. First-order optimality conditions for elliptic mathematical programs with equilibrium constraints via variational analysis. *SIAM J. Optim.* 21(4), 1561–1593 (2011). doi:10.1137/100802396

43. R. Henrion, **T.M. Surowiec**. On calmness conditions in convex bilevel programming. *Appl. Anal.* 90, 951–970 (2011). doi:10.1080/00036811.2010.495339

44. R. Henrion, J.V. Outrata, **T.M. Surowiec**. A note on the relation between strong and M-stationarity for a class of mathematical programs with equilibrium constraints. *Kybernetika* 46, 423–434 (2010).

45. R. Henrion, J.V. Outrata, **T.M. Surowiec**. On the co-derivative of normal cone mappings to inequality systems. *Nonlinear Anal.* 71(3–4), 1213–1226 (2009). doi:10.1016/j.na.2008.11.089

46. D. Bauer, H.J. Broersma, N. Kahl, A. Morgana, E. Schmeichel, **T.M. Surowiec**. Tutte sets in graphs II: The complexity of finding maximum Tutte sets. *Discrete Appl. Math.* 155, 1336–1343 (2007). doi:10.1016/j.dam.2007.02.002

47. D. Bauer, E. Schmeichel, **T.M. Surowiec**. Subdivision of edges and matching size. *Ars Combin.* 84, 141–153 (2007).

Preprints, forthcoming, and in preparation

48. P. Gangl, B. Keith, D. Kim, B.S. Lazarov, **T.M. Surowiec**. The SiMPL method for multi-material topology optimization. arXiv:2605.11994 (2026).

49. A. Scagliotti, **T.M. Surowiec**. Risk-averse ensemble control for control-affine systems. arXiv:2605.02791 (2026).

50. M. Castillón, B. Khara, J.S. Dokken, **T.M. Surowiec**, B. Keith, Y. Bazilevs. Proximal Galerkin for phase field fracture. arXiv:2604.26210 (2026).

51. A. Alphonse, M. Hintermüller, **T.M. Surowiec**. Analysis and stationarity for risk-averse optimisation with variational inequality constraints. Book chapter, forthcoming.

52. H. Antil, D.P. Kouri, D. Ridzal, **T.M. Surowiec**. The RALES method: a risk-averse augmented Lagrangian equality-constrained SQP method for optimization with general constraints. In preparation.

Interdisciplinary and expository

53. A. Kirschbaum, J. Jonas, **T.M. Surowiec**, A. Pehl, N. Mirow. Detection of the lateral thermal spread during bipolar vessel sealing in an ex vivo model: preliminary results. *Diagnostics* 12(5), 1217 (2022). doi:10.3390/diagnostics12051217

54. A. Kirschbaum, **T.M. Surowiec**, A. Pehl, T. Wiesmann, D.K. Bartsch, N. Mirow. Local lung coagulation post resection: an ex-vivo porcine model. *Lasers Med. Sci.* (2021). doi:10.1007/s10103-021-03280-7

55. A. Kirschbaum, **T.M. Surowiec**, A. Pehl, A. Gockel, D.K. Bartsch, N. Mirow. Suturing of the laser resection area is recommended over a depth of 2 cm in an experimental porcine lung model. *J. Thorac. Dis.* 10(9), 5339–5345 (2018). doi:10.21037/jtd.2018.08.122

56. D.P. Kouri, **T.M. Surowiec**. PDE-constrained optimization under uncertainty. *SIAG/OPT Views and News* 25(2) (2017).

Teaching

Simula is a research institute without teaching duties (comparable to Sandia, Argonne, or a Max Planck Institute); since 2022, teaching has taken the form of lecture series, summer schools, and supervision.

Undergrad.	Linear Programming (6×), Nonlinear Optimization (5×), Real Analysis for Physicists; recitations in Real Analysis, Linear Algebra, and Calculus
Graduate	PDE-Constrained Optimization, Convex Analysis in Banach Spaces, Stochastic Optimization, Optimization for Machine Learning, Variational Inequalities, Nonsmooth Optimization, MPECs

Schools — Lecture series at the EMS School on Applied Mathematics, Kačov (2025) and NUMRAD24, EPFL (2024); courses at CMAI, George Mason (2021, videos), IIT Bombay (2018), and the IMA, Minneapolis (2016); organizer of the DFG-SPP 1962 Summer School (2021)

Supervision and Mentoring

Primary supervisor of 2 completed PhDs (2 in progress), 4 postdocs, 11 Master's and 17 Bachelor's theses; several students became co-authors. Alumni have moved to academia and industry.

Current — Postdocs H. Jasa and U. Zerbinati; PhD students J.E. Espinoza Grijalva and D.A. Molina Bakhos (Simula)

Former — PhDs D.B. Gahururu (Marburg, 2022) and M. Theiß (HU Berlin, 2025); postdocs L. Adam (HU Berlin) and A. Kirkeby (now NTNU)

Examiner — External PhD examiner at Charles University Prague, ETH Zürich, TU Darmstadt, HU Berlin

Selected Invited Presentations

Plenary, Oberwolfach, and institute lectures

2027 — **Plenary lecture** (upcoming), ENUMATH 2027, European Conference on Numerical Mathematics and Advanced Applications

11.2025 — **Plenary lecture**, PGMODAYS 2025, EDF Lab Paris-Saclay. *Risk-averse PDE-constrained optimization: theory, algorithms, and statistical foundations* (slides)

04.2026 — ICERM, Brown University. *RALES: a risk-averse augmented Lagrangian equality-constrained SQP method for optimization with general constraints* (video)

03.2024 — ICERM, Brown University. *The proximal Galerkin method*

02.2021 — Oberwolfach Workshop 2107, Challenges in Optimization with Complex PDE-Systems. *An interior point approach for a class of risk-averse PDE-constrained optimization problems with coherent risk measures*

08.2018 — Oberwolfach Workshop 1834, New Directions in Stochastic Optimisation. *Perspectives on PDE-constrained optimization under uncertainty*

04.2018 — Oberwolfach Workshop 1815, Challenges in Optimal Control of Nonlinear PDE-Systems. *Risk-averse optimal control of PDE-systems with random parameters*

Invited lecture series at the EMS School on Applied Mathematics (2025) and NUMRAD24, EPFL (2024) are listed under Teaching.

Colloquia, seminars, and conference talks

06.2026 — SIAM Conference on Optimization, Edinburgh. *RALES: a risk-averse augmented Lagrangian equality-constrained SQP method*

02.2026 — LC2 Seminar, Imperial College London. *A brief tour of risk-averse PDE-constrained optimization: from models to data-driven stability*

02.2024 — SIAM Conference on Uncertainty Quantification, Trieste. *Numerical methods for state constraints in PDE-constrained optimization under uncertainty*

06.2023 — SIAM Conference on Optimization, Seattle. *Almost sure state constraints in PDE-constrained optimization under uncertainty*

03.2023 — SIAM Conference on Computational Science and Engineering, Amsterdam. *Risk-averse optimization of random elliptic variational inequalities*

04.2022 — SIAM Conference on Uncertainty Quantification, Atlanta. *Asymptotic properties of Monte Carlo methods for PDE-constrained optimization under uncertainty*

01.2021 — Mathematics Colloquium, TU Darmstadt (virtual). *Risk-averse optimization of random elliptic PDEs: modeling, theory, and numerical solution*

11.2020 — CRM Applied Mathematics Seminar, Montréal. *A primal-dual algorithm for risk minimization in PDE-constrained optimization* (video)

05.2017 — SIAM Conference on Optimization, Vancouver. *Risk-averse optimization of partial differential equations with random inputs*

04.2017 — Numerical Analysis Seminar, University of Oxford. *Risk-averse optimization of PDEs with random inputs*

03.2017	Applied Math and Analysis Seminar, Duke University. *Risk-averse PDE-constrained optimization: analysis, optimality, and numerical solution*
04.2015	Numerical Analysis Seminar, University of Maryland, College Park. *Optimal control of elliptic variational inequalities: optimality conditions and numerical methods*
	Further invited talks at ICCOPT (2016, 2019), ICIAM (2019), ISMP (2015), and specialized workshops.

Service

Editorial	Associate Editor, *Optimization and Engineering* (2023–); Area Editor, *Advances in Continuous and Discrete Models* (2021–)
Referee	SIOPT, SICON, SISC, Math. Program., Numer. Math., and others; grant reviewer for DFG, FWF, KU Leuven
Organizing	Stream organizer, ISMP 2027; founder and organizer, Optimization in Oslo Seminar (2022–, YouTube); co-organizer, BIRS Workshop on Optimization under Uncertainty (2021); cluster chair, ICCOPT 2019; scientific committee, EUCCO 2023 and 2025
University	Marburg: elected faculty council member, director of the examination board, tenure-track committee, search committees

Additional Information

Software	Proximal Galerkin, LVPP, and SiMPL are implemented in FEniCS, Firedrake, and MFEM
Public	Op-eds in *Morgenbladet*: *Én feil, og alt kollapser* ("One error, and everything collapses"; with A. Kirkeby, March 2026) and *Vi trenger ikke høyere temperatur i KI-debatten* ("We don't need a higher temperature in the AI debate"; with A. Kirkeby and M. Riegler, May 2026). Interviewed in *Forskerforum*: *KI-agenter som geniale forskningsassistenter? Forskere er ikke så sikre* ("AI agents as brilliant research assistants? Researchers are not so sure," April 2026).
Member	SIAM (Activity Groups on Optimization and on CS&E)
Languages	English (native), German (C1, fluent), Norwegian (B2, upper intermediate)