

CURRICULUM VITAE AND LIST OF PUBLICATIONS FOR
STEEN MARKVORSEN

Updated February 2024

Curriculum Vitae

- Born : August 30, 1954, Bækmark at Bækmarksbro, Jutland, Denmark.
- June 1974 : Finished Gymnasium, Math.-Phys., Holstebro.
- January 1980 : Master of Science in Engineering, DTU.
- June 1983 : Ph.D. (Lic. Techn.) from DTU.
- Feb. 1982 - May 1983 : Scientific Assistant at Department of Mathematics, DTU.
- Aug. 1983 - July 1984 : Visiting Assistant Professor at Department of Mathematics, University of Missouri-Columbia, USA. Sponsors: Danish Natural Science Research Council and the Fulbright Foundation.
- Sept. 1984 - Aug. 1985 : Gastwissenschaftler am Max Planck Institut für Mathematik, Bonn, BRD. Sponsor: Max Planck Institut für Mathematik.
- Sept. 1985 - Feb. 1989 : Assistant Professor at Department of Mathematics, DTU.
- March 1989 - March 1990 : Associate Professor at Department of Mathematics, DTU.
- April 1990 - August 1998 : Docent (Reader) at Department of Mathematics, DTU.
- From September 2004 to August 2005 : Affiliated (20%) with the Learning Lab DTU.
- Sept. 1998 - Dec. 2012 : Professor at Department of Mathematics, DTU.
- From January 2013 : Professor at the Mathematics Section of DTU Compute.
- From May 2012 : Appointed Knight of the Order of Dannebrog by Her Majesty the Queen of Denmark.

Scholarships, grants, and fundraising

- Fulbright Scholarship Travel Grant (1983).
- Post doc stipend from the Danish Natural Science Research Council (SNF) (1983–1984).
- Fully supported by research grant and membership at Max Planck Institut für Mathematik, Bonn, BRD (1984–1985).
- P. Gorm-Petersen's Commemorative Grant (1988).

- Member of the [Mathematical Sciences Research Institute, Berkeley, USA](#), October 1993.
- Member of the group of researchers supported by the SNF-grant: *Global Analysis with Applications* (1992–2007).
- Contractor: SNF project *Combinatorial Differential Geometry* (1994–1995). Included a Post doc stipend for Dr. Petr Lisoněk (1995–1996). Coresearchers: Poul Hjorth and Carsten Thomassen (DTU Mathematics).
- Member of research group supported by DANVIS, the Danish Programme for Visiting Scientists (Co. The Danish Research Academy) with a Post Doc stipend for Dr. Robert Sinclair (1998–1999). Coresearchers: Poul Hjorth and Jens Gravesen (DTU Mathematics).
- Contractor and member of group of teachers with support from IPN, the Engineers Pedagogical Network for the "Geometry Project"(1998–1999).
- Research grant from Reinholdt W. Jorck and Wife's Foundation, December 1999.
- Co-researcher (with Ana Hurtado and grantholder Vicente Palmer) in the project *Geometric Analysis* (2004–2010, 2015–2016), funded by [The Spanish Ministry of Education and Science](#).
- Initiator, grantholder and co-organizer (with C. Henriksen and K. Schmidt) of [Matematicum](#), the mathematical inspiratorium at DTU, funded by The Danish Natural Science Research Council (FNU), The Birch&Krogboe Foundation (now Alectia), DTU's Strategic Fund, and Skoletjenesten, from 2007.
- Member of E-learning project *HEROS for first year math - new ways of learning* (with grantholder H. Rootzén, DTU Informatics; K. Schmidt, DTU Mathematics; and L. Sendrup, LearningLab DTU) 2008–2010. Funded by the National IT and Telecom Agency for The Ministry of Science, Technology, and Innovation.
- Member of the research group at DTU Compute working on the [Bladerunner](#) project supported by Innovation Fund Denmark (2013–2016).
- Member of research group at DTU Compute working on the project: *The travelling optical Scanner*, Att.: Anders Dahl, DTU Compute, funded by DTU Compute Strategic Fund, 2014-2015.
- Grantholder for project *Differential Geometry and beyond with Maple-TA* funded by DTU Compute Strategic Fund, 2016-2017.
- Grantholder for project supported by the Novo Nordisk Foundation 2020 – 2023: *InterMat - a bridge to further studies with STEM*. [Link](#). In collaboration with Karsten Schmidt and Andreas Obel-Jørgensen.
- Visiting scholar grant for Francisco Martín, University of Granada. Joint with Niels Martin Møller, Copenhagen University, 2022.

- Three weeks research visit grant from Universidad de Murcia, Spain, December 2023.
- Co-researcher (with V. Gimeno, V. Palmer, X. Gual, F. Vinado, and E. Sarrion) in the project *Geometric Analysis and Potential Theory* 2021–2025, funded by The Spanish Ministry of Science and Innovation.

Other Offices

- Member of [the European Mathematical Society](#) Committee on Raising Public Awareness of Mathematics, see [Mathematics-in-Europe website](#), 2009–2014.
- Member of Math Forum (secondary school issues), Ministry of Education, from 2010.
- Member of the board of [Gammel Hellerup Gymnasium](#) from 2007.
- Member of the board of DTU Mathematics, 2006–2011.
- Member of the [Danish Academy of the Natural Sciences](#) from 2001.
- Member of the board of the [Technical Knowledge Center of Denmark](#), 2003–2005.
- Associate editor for the *Newsletter of the European Mathematical Society*, 1999–2005.
- Associate editor for *Aktuel Naturvidenskab*, 1999–2005.
- Member of the board of the [Danish Mathematical Society \(Dansk Matematisk Forening\)](#), 1988–1998.
- Author and figure-maker (56 articles) for *The Danish Encyclopedia* 1993–2002 and for the online version *denstoredanske.dk* 2009–2017, embedded (from 2020) in [lex.dk](#).
- Officially appointed [Examiner in Mathematics](#) at the Universities in Denmark from 1987.
- Lecturer at the [University Extension of the University of Copenhagen \(Folkeuniversitetet\)](#), 1985–2009.
- Member of DTU Deans' Education Think Tank, 2012–2015.
- Member of DTU Library Forum, 2010–2020.
- Member of working groups for the Ministry of Education: Mathematical skills (2011); Digital Exams (2013 – 2015); Innovation exercises in high school mathematics (2014); Progression portfolios in high school mathematics (2014); Accounting for the status of high school mathematics (2014 – 2015);
- Member of the Mathematics Commission ([Matematikkommissionens rapport](#)), (2016); Consultant for the ensuing Mathematics Curriculum Descriptions for high schools (stx and hf) (2016).
- Appointed member of DTU working group conc.: Danish Code of Conduct for Research Integrity; Att.: Provost Henrik C. Wegener, (2015-2016).

- Chairman for expert group analyzing the (50 years') development of mathematical competencies in the Danish Gymnasiums (2019), [link](#).
- Member of the steering group for NCUM, [National Center for the Development of Mathematics Education](#) (2021–).

Research impact statistics profile

- ORCID identifier: <http://orcid.org/0000-0002-0061-0672>
- ResearcherID: <http://www.researcherid.com/rid/L-1717-2017>
- According to ISI Web Of Knowledge, Web of Science <http://www.isiwebofknowledge.com/>
Articles: 41; Sum of times cited: 411; Average Citations per item: 10.02; H-index: 13.
- According to AMS MathSciNet, Math Review <http://www.ams.org/mathscinet/>
Total publications: 44; Co-authors: 30; Total citations: 336; Cited by 243 authors.
- According to AMS MathSciNet, (selected) Collaboration distances <http://www.ams.org/mathscinet/collaborationDistance.html>
C. F. Gauss: 6; B. Riemann: 5; A. Einstein: 4; S. S. Chern: 3; S. T. Yau: 3; M. Gromov: 3; P. D. Lax: 3; L. Carleson: 3; M. Berger: 3; W. Klingenberg: 3; K. Nomizu: 3; J. Cheeger: 3; G. W. Gibbons: 3; C. Villani: 3; K.-T. Sturm: 3; P. Erdős: 2; H. Busemann: 2; R. M. Schoen: 2; J. Dodziuk: 2; H. Karcher: 2; J. P. Bourguignon: 2; D. Gromoll: 2; S. Ohta: 2;

Ph.D. Thesis

On the Geometry of the Scalar Jacobi Equation, Department of Mathematics, DTU (1983), 107 pages. Advisors: Vagn Lundsgaard Hansen and Otto Moltke Leth. External examiner: Karsten Grove.

Patent and related work

- (With J. Gravesen, D. Brander, A. Bærentzen, T. Nørbjerg, and K. Steenstrup) *Robotic system and method for manufacturing of objects*. Patent No. WO2017157917. Publication date: 21.09.17. [DTU Orbit Link](#).
- Consultancy work for NVB International UK Ltd (2011): Piston–Chamber Combination, Van-der-Blom Motor:
Patent Pub. No.: WO/2012/146333 International Application No.: PCT/EP2012/000913, and

Patent Pub. No.: WO/2013/026508 International Application No.: PCT/EP2012/002792.

- Consultancy work for Budde Schou A/S, co. Henrik Sten Nielsen concerning legal objections to patent EP01262708B1 about [Verfahren zum Sanieren von Rohrleitungen], 2009.

Publications

- (1) *A Ricci Curvature Criterion for Compactness of Riemannian Manifolds*. Archiv der Mathematik **39** (1982) 85–91. MR 84b:53039, Zbl 0497.53046.
- (2) *A Sufficient Condition for a Compact Immersion to be Spherical*. Mathematische Zeitschrift **183** (1983) 407–411. MR 85d:53029, Zbl 0498.53040.
- (3) (with J. Beem, P. Ehrlich and G. Galloway) *Decomposition Theorems for Lorentzian Manifolds with Nonpositive Curvature*. Journal of Differential Geometry **22** (1985) 29–42. MR 87i:53093b, Zbl 0585.53054.
- (4) (with J. Beem and P. Ehrlich) *Timelike Isometries of Space-Times with Nonnegative Sectional Curvature*. In Proceedings of the Colloquia Math. Soc. Janos Bolyai, **46**, 1984, North Holland (1987) 153–165. MR 89e:53095, Zbl 0634.53044.
- (5) (with J. Beem, P. Ehrlich and G. Galloway) *A Toponogov Splitting Theorem for Lorentzian Manifolds*. In Global Differential Geometry and Global Analysis 1984, Proceedings, Berlin. Lecture Notes in Mathematics **1156** (1985) 1–13. MR 87i:53093a, Zbl 0567.53046.
- (6) *On the Heat Kernel Comparison Theorems for Minimal Submanifolds*. Proceedings of the American Mathematical Society **97** (1986) 479–482. MR 87i:58160, Zbl 0597.53049.
- (7) (with J. Beem and P. Ehrlich) *Timelike Isometries and Killing Fields*. Geometriae Dedicata **26** (1988) 247–258. MR 89k:53058, Zbl 0647.53045.
- (8) *A Note on Disfocality*. Journal of Mathematical Analysis and Applications **131** (1988) 106–112. MR 89d:34063, Zbl 0651.34031.
- (9) *On the Mean Exit Time From a Minimal Submanifold*. Journal of Differential Geometry **29** (1989) 1–8. MR 90a:58190, Zbl 0637.58033.

- (10) *A characteristic Eigenfunction for Minimal Hypersurfaces in Space Forms*. *Mathematische Zeitschrift* **202** (1989) 375–382. MR 91a:53086, Zbl 0661.53041.
- (11) *A Transplantation of Heat Kernels and Eigenfunctions via Harmonic Maps*. In *Proceedings of the 6.th Int. Colloquium on Differential Geometry, Santiago de Compostela, Spain (1988)*. Editor: L.A. Cordero. *Cursos y Congresos*, **61** (1989) 171–175. MR 91g:58278, Zbl 0752.58033.
- (12) *On Hypersurfaces in Hyperquadrics*. In *Proceedings of the Colloquia Math. Soc. Janos Bolyai*, **56** (1989), North Holland (1992) 469–475. MR 94b:53096, Zbl 0789.53037.
- (13) (with S. McGuinness and C. Thomassen) *Transient Random Walks on Graphs and Metric Spaces with Applications to Hyperbolic Surfaces*. *Proceedings of the London Mathematical Society* (3) **64** (1992) 1–20. MR 93e:60142, Zbl 0772.05086.
- (14) (with M. Brøns and W. Kliem) *Nonlinear Models of a Vibrating Elasticum*. *Journal of Sound and Vibrations* (1) **158** (1992) 35–43.
- (15) (with Karsten Grove) *Curvature, Triameter and Beyond*. *Bulletin (New Series) of the American Mathematical Society* (2) **27** (1992) 261–265. MR 93b:53036, Zbl 0753.53025.
- (16) (with J. Gravesen and L. Gæde) *A Characterization of Spheres, Circles and Cardioids*. *Archiv der Mathematik* **60** (1993) 579–590. MR 94e:53052, Zbl 0780.53010.
- (17) (with Karsten Grove) *New Extremal Problems for the Riemannian Recognition Program via Aleksandrov Geometry*. *J. American Math. Soc.* **8** (1995) 1–28. MR 95j:53066, Zbl 0829.53033.
- (18) *On Curvature and Shape - A Comparison Geometric Survey*. *Expositiones Mathematicae* **13** (1995) 417–432. MR 96j:53002, Zbl 0881.53030.
- (19) (with C. Philipsen and W. Kliem) *Modelling the Stem Curve of a Palm in a Strong Wind*. *SIAM Review* **38** (1996) 483–484.
- (20) (with H. Ferguson and A. Gray) *Costa's Minimal Surface via Mathematica*. *Mathematica in Education and Research* **5** (1996) 5–10.

- (21) *On Curvature and Shape*. Zb. Rad. Mat. Inst. Beograd. (N.S.) **6**, 14 (1997) 55–75. MR 99f:53004, Zbl 0947.01009.
- (22) (with P. Hjorth, P. Lisoněk and C. Thomassen) *Finite Metric Spaces of Strictly Negative Type*. Linear Algebra and its Appl. **270** (1998) 255–273. MR 98k:15027, Zbl 0894.51003.
- (23) (with P. Hjorth and S. L. Kokkendorff) *Hyperbolic Spaces are of Strictly Negative Type*. Proceedings of the Amer. Math. Soc. **130** (2002) 175–181. MR 2002j:53031, Zbl 0987.32010.
- (24) (with V. Palmer) *Generalized Isoperimetric Inequalities for Extrinsic Balls in Minimal Submanifolds*, Journal für die Reine und Angewandte Mathematik **551** (2002) 101–121. MR 2003k:53072, Zbl 1016.53047.
- (25) (with V. Palmer) *The Relative Volume Growth of Minimal Submanifolds*, Archiv der Mathematik **79** (2002) 507–514. MR 2004a:53078, Zbl 1024.53042.
- (26) (with V. Palmer) *On the Isoperimetric Rigidity of Extrinsic Minimal Balls*, Differential Geometry and its Applications **18** (2003) 47–54. MR 2003k:53046, Zbl 1041.53040.
- (27) (with M. Min-Oo) *Global Riemannian Geometry: Curvature and Topology*, Advanced courses in Mathematics CRM Barcelona. Birkhäuser (2003). MR 2003862, Zbl 1048.53028.
- (28) (with V. Palmer) *Transience and Capacity of Minimal Submanifolds*, GAFA, Geometric and Functional Analysis **13** (2003) 915–933. MR 2005d:58064, Zbl 1045.53028. [DTU Orbit Link](#).
- (29) (With V. Palmer) *How to obtain Transience from Bounded Radial Mean Curvature*, Trans. Amer. Math. Soc. **357** (2005) 3459–3479. MR 2006i:58050, Zbl 1071.58028. [DTU Orbit Link](#).
- (30) (With J. Gravesen, R. Sinclair, and M. Tanaka) *The Cut Locus of a Torus of Revolution*, Asian Journal of Mathematics **9** No. 1 (2005) 103–120. MR 2006b:53042, Zbl 1080.53005.
- (31) (With V. Palmer), *Torsional Rigidity of Minimal Submanifolds*, Proc. London Math. Soc. (3) **93** (2006) 253–272. MR2235949, Zbl 1104.53056. [DTU Orbit Link](#).

- (32) (With H. Bohr and J. Ipsen), *Condensed matter physics of biomolecule systems in a differential geometric framework*, Internat. J. Modern Phys. B, Vol. 21 (2007) 2475–2492. [DTU Orbit Link](#).
- (33) *The classical version of Stokes' theorem revisited*, Internat. J. Math. Ed. Sci. Tech. **39** (issue 7) (2008) 879–888. [DTU Orbit Link](#).
- (34) *Minimal Webs in Riemannian Manifolds*. Geometriae Dedicata **133** (2008) 7–34. MR2390065, Zbl 1172.53039. [DTU Orbit Link](#).
- (35) (With Ana Hurtado and Vicente Palmer) *Torsional Rigidity of Submanifolds with Controlled Geometry*. Mathematische Annalen **344** (2009) 511–542. MR2501301, Zbl pre05565278. [DTU Orbit Link](#).
- (36) (With I. Holopainen and V. Palmer) *p –Transience and p –Hyperbolicity of Submanifolds*. Revista Matemática Iberoamericana **25** (2009) 709–738. MR2569551, Zbl 1176.53056. [DTU Orbit Link](#).
- (37) (With V. Palmer) *Extrinsic Isoperimetric Analysis on Submanifolds with Curvatures bounded from below*. Journal of Geometric Analysis **20** (2010) 388–421. MR2579515, Zbl 1185.53067. [DTU Orbit Link](#).
- (38) (With Lotte B. Jensen and Henrik Almegaard), *Mutual Workshops enhancing Curriculum Integration*, Proceedings of the 7. International CDIO Conference, Technical University of Denmark, 2011. ISBN 978-87-985272 -6-8. [DTU Orbit Link](#).
- (39) (With M. K. Misztal, J. A. Bærentzen, and F. Anton) *Cut locus construction using deformable simplicial complexes*. In 2011 Eighth International Symposium on Voronoi Diagrams in Science and Engineering (ISVD 2011), pages 134 – 141, 2011. Published by IEEE. [DTU Orbit Link](#).
- (40) (With Karsten Schmidt) *Online Mathematics Education – E-Math for first year engineering students*. CSEDU 2012 - Proceedings of the 4th International Conference on Computer Supported Education, Porto, Portugal, 16 - 18 April, 2012. Pages 360 – 363. ISBN 9789898565068. [DTU Orbit Link](#).
- (41) (With Ana Hurtado and Vicente Palmer) *Comparison of exit moment spectra for extrinsic metric balls*; Potential Analysis (2012) Volume 36, Issue 1, pp. 137-153. MR2886456, Zbl 1241.53050. [DTU Orbit Link](#).

- (42) *From PA(X) to RPAM(X)*, Chapter in book: *Raising Public Awareness of Mathematics*, Eds.: E. Behrends, N. Crato, and J. F. Rodrigues, pp. 255–267, Springer, 2012. [DOI](#) and [DTU Orbit Link](#).
- (43) (With Jakob Bohr) *Ribbon Crystals*, PLoS ONE 8(10) 2013: e74932. [Link](#).
- (44) (With Vicent Gimeno), *Ends, fundamental tones, and capacities of minimal submanifolds via extrinsic comparison theory*. *Potential Analysis*, May 2015, Volume 42, Issue 4, pp 749-774, [DOI](#) and [DTU Orbit Link](#).
- (45) (With D. Brander) *Surfaces with natural Ridges*. Proceedings of Bridges Baltimore 2015 : Mathematics, Music, Art, Architecture, Culture, Baltimore, July 29. – August 1. 2015; [Link via DTU Orbit](#).
- (46) (With Ana Hurtado and Vicente Palmer), *Estimates of the first Dirichlet eigenvalue from exit time moment spectra*. *Mathematische Annalen* (2016) **365**, 1603–1632. [DOI](#) and [DTU Orbit Link](#).
- (47) *A Finsler geodesic spray paradigm for wildfire spread modelling*. *Nonlinear Analysis: Real World Applications* **28** (2016) 208–228. [DOI](#) and [DTU Orbit Link](#).
- (48) (With Jakob Bohr), *Autorotation*. *Physica Scripta* **91** 023005 (2016). [DOI](#).
- (49) (With Søndergaard, A., Feringa, J., Nørbjerg, T., Steenstrup, K., Brander, D., Gravesen, J., Bærentzen, A., Petkov, K., Hattel, J., Clausen, K., Jensen, K., Knudsen, L., Kortbek, J.), *Robotic hot-blade cutting: an industrial approach to cost-effective production of double curved concrete structures..* Pp. 150–164 in Proceedings of RobArch 2016, Robotic Fabrication in Architecture, Art and Design 2016, Editors: Reinhardt, Dagmar, Saunders, Rob, Burry, Jane. Springer 2016. [Link](#).
- (50) (With M. Raffaelli and J. Bohr), *Sculpturing Surfaces with Cartan Ribbons*. Proceedings of Bridges 2016: Mathematics, Music, Art, Architecture, Education, Culture. Editors: Eve Torrence, Bruce Torrence, Carlo Séquin, Douglas McKenna, Kristóf Fenyvesi and Reza Sarhangi. [Link](#).
- (51) (With D. Brander, A. Bærentzen, A. Evgrafov, J. Gravesen, T. Nørbjerg, P. Nørtoft, and K. Steenstrup) *Hot Blade Cuttings for the Building Industries*. Proceedings of the KoMSO Challenge Workshop:

Math for the Digital Factory. Event: KoMSO Challenge Workshop - Berlin, Germany. Editors: L. Ghezzi, D. Hömberg, Ch. Landry. Springer (2016). [DTU Orbit Link](#).

- (52) (With M. Raffaelli and J. Bohr) *Cartan ribbonization of surfaces and a topological inspection*. Royal Society Proceedings A, **474**, 20170389 (17 pp.), (2018). [DOI](#).
- (53) (With V. Gimeno and J. M. Sotoca) *A lower bound for the area of foams*. J Inequal Appl 2020, 96 (2020). <https://doi.org/10.1186/s13660-020-02362-4>.
- (54) (With J. J. Madsen), *Tractors and Tractrices in Riemannian manifolds*. In arXiv, July 2017: [arXiv](#).
- (55) *Geodesic sprays and frozen metrics in rheonomic Lagrange manifolds*. In arXiv, August 2017: [arXiv](#).
- (56) (With J. Bohr and M. Raffaelli), *Newson's challenge and the volume of certain convex hulls*. In arXiv, May 2018: [arXiv](#).
- (57) (With Ana Hurtado, Maung Min-Oo, and Vicente Palmer) *Global Riemannian Geometry: Curvature and Topology*, Advanced courses in Mathematics CRM Barcelona. Second Edition. Birkhäuser (2020). <https://doi.org/10.1007/978-3-030-55293-0>.
- (58) (With Matteo Raffaelli) *Planar pseudo-geodesics and totally umbilic submanifolds*. The Journal of Geometric Analysis (2024) 34:53 <https://doi.org/10.1007/s12220-023-01498-1>.
- (59) (With Kim Knudsen and Hjørdis Amanda Schlüter) *Reconstructing anisotropic conductivities on two-dimensional Riemannian manifolds from power densities*. In arXiv, February 2022: [arXiv](#).
- (60) (With Enrique Pendás-Recondo) *Snell's law revisited and generalized via Finsler geometry*. International Journal of Geometric Methods in Modern Physics — 2023, Volume 20, Issue 8, pp. 2350138
- (61) (With Vicent Gimeno) *Energy spectrum of a constrained quantum particle and the Willmore energy of the constraining surface*. In arXiv, February 2023: [arXiv](#). Accepted Sep. 2023 for publication in ATMP, Advances in Theoretical and Mathematical Physics.
- (62) (With G. Pacelli Bessa and Leandro F. Pessoa), *Mean exit times from submanifolds with bounded mean curvature*. In arXiv, July 2023:

[arXiv](#).

Other preprints and manuscripts in preparation

- (63) (With Frederik Möbius Rygaard, Søren Hauberg, and Stefan Sommer), *Score Matching Riemannian Diffusion Means*.
- (64) (With D. Brander) *Geodesic Circle Packings in the Plane and on Surfaces*.
- (65) (With M. Frøland) *Soap Bubbles and Delaunay Surfaces*.

Historical/Didactical/Elementary/

- (66) *On Gauss - A Fragmentary Essay (Danish)*. Nordisk Matematisk Tidsskrift **40** (1) (1992) 26–36. Also in French, translated by A. Douady: *Sur Gauss (essai fragmentaire)*. Quadrature **6** Octobre–Novembre (1990) 7–12. MR 93k:01038.
- (67) *Fixed Points (Danish)*. In "Matematiske Ideer; En Artikelsamling til større Skriftlige Opgaver"; Eds.: S.T. Jensen and J. Matthiasen, Matematiklærerforeningen (The Association of Gymnasium Mathematics Teachers in Denmark) (1993) 159–174.
- (68) *The Area of Spherical Polygons (Danish)*. In "Matematiske Essays"; Eds.: J. Carstensen and S. T. Jensen, Matematiklærerforeningen (The Association of Gymnasium Mathematics Teachers in Denmark) (1995) 86–91.
- (69) (with V. L. Hansen and P. Hjorth) *Mathematics between Man and Machine (Danish)*. In: "Matematikundervisning i lyset og skyggen af edb"; Ed.: G. Fosgerau et al., KvaN, (1996) 71–82.
- (70) (with G. Greene, R. Greene, H. B. Nielsen, P. Røgen, R. Sinclair, and M. Ungstrup), *SCAN-Technology: Feature recognition for automated sculpture reproduction*. In Final Report from ESGI 32 Study Group with Industry, Dept. of Math. DTU, 30 August - 4 Sep. 1998, pp. 95–108, <http://www.mat.dtu.dk/ESGI32>. Eds.: P. Hjorth and J. Gravesen.

Appears also in ECMI Newsletter **25** (1999) 15–18.

- (71) *An Interview with Professor Sir Christopher Zeeman*, Newsletter of the European Mathematical Society **30** (Dec. 1998) 14–19.
- (72) (with P. Hjorth), *Experimental Mathematics – Mathematical Experiments*, in Danish, Naturens Verden Nr. **3** (1999) 33–40. Reprinted in special issue, supported by The Danish Natural Sciences Research Council, (2000).
- (73) *Aar 2000 er Matematikår* (in Danish), Aktuel Naturvidenskab Nr. **1** (1999) 57.
- (74) *A Geometric Exploration into Time and Space* (in Danish), Aktuel Naturvidenskab Nr. **3** (1999) 3–6.
<http://viden.jp.dk/binaries/an/8401.pdf>
- (75) (with K. E. Andersen), *A Geometric Exploration into Time and Space* (in Danish), Sciencesite Matematik, DTU, (1999)
www.emis.de/misc/cdrom/WMY2000/
- (76) *An Interview with Professor Bernd Wegner*, Newsletter of the European Mathematical Society **37** (Sep. 2000) 24–26.
- (77) *Matematik handler om at forstå hvad der foregår* (in Danish) Chapter 6 in *Matematikken og Verden*, (ed. Mogens Niss), pp. 136–157, Forlaget Fremad, 2001.
- (78) (with P. Alsholm and W. Kliem) *Shaping the Future of Engineering Mathematics*, Proceedings of the SEFI Annual Conference (Eds.: Ole Vinther and Palle Sørensen), Copenhagen, September 12. - 14., 2001, p. 170.
- (79) (with K. E. Andersen), *Boomerangs* (in Danish), Department of Math. server (2001)
<http://www.mat.dtu.dk/Boomerang/>
- (80) (with P. Sørensen and H. Rootzen), *IT and learning at DTU* (in Danish), IPN news **11** (2002) 10–11.
- (81) (with B. Branner), *Interview with Vagn Lundsgaard Hansen*, Newsletter of the European Mathematical Society **47** (2003) 15–19. Reprinted in Matilde, Newsletter of the Danish Mathematical Society, **17** (2003) 34–39.

- (82) (with M. P. Bendsøe, P. G. Hjorth, and A. Bertelsen), *Optimale Konstruktioner*, Perspektiv **3**, Fysikforlaget (2003) 1–8.
- (83) Invited commentator, *Science Cafe: What is science?*, A debate 9.th March 2003. Eye witness tale in booklet by G. Balling and E. Schuller, *The Science Café, Science, Art, and Culture*, Hovedland Publishers (2004) pp. 43–44.
- (84) *Matematikken i Krydsfeltet mellem Undervisning, Forskning, og Innovation*, In proceedings from 3:e Pedagogiska Inspirationskonferensen, Eds.: Lisbeth Tempte and Torgny Roxå, Lunds Tekniska Högskola, 31. Maj (2005) 60–61.
- (85) (With M. Bro, K. Døring, L.-P. Ellekilde, M. S. Hansen, D. Spence, M. Stolpe, and D. Sølvason) *Smart Calibration of Excavators - An ESGI54 Project from MIKROFYN*, Report from the 54.th European Study Group with Industry, Maersk Institute for Production technology, Odense, 15.08.05–19.08.05.
- (86) *Integration i flere Variable*, Notes, Department of Mathematics: <http://www2.mat.dtu.dk/education/01005/MWS/INTEGRATOR8/>
- (87) *The direct flow parametric proof of Gauss' divergence theorem revisited*, MAT-Report 2006-15, Institut for Matematik og LLDTU, 2006.
- (88) (With J. W. Perram, P. Hjorth, J. J. Henriksen and 29 students), *Maersk Institute sets record in distance learning*, News from The Maersk Institute for Production Technology, 21.06.06, <http://www.mip.sdu.dk/news/gr/perram.210606.htm>
- (89) (With P. G. Hjorth) *Licence to Thrill*, One Chapter and 5 project appetizers in book: *Experimental Mathematics* (in Danish), Ed. N. M. Afzelius et al. Matematiklærerforeningen (2007).
- (90) *A Blue Lagoon Function*. A 3D print and a short paper-borne explanation. Produced upon special request from Gunnar Mohr, Dean of Studies, DTU, December 2007.
- (91) *Math Education at a Crossroads*. Presentation at ICME 11 (Eleventh International Congress on Mathematical Education) in Monterrey, Mexico, July 6.–13. 2008. <http://www.icme11.org/node/622>

- (92) (With Lars R. Knudsen and Hans Sloth), *Polyedre - Mappe og Ud-klipsark*, TRIP, 2008.
- (93) *Fire!*. Chapter in book: *Mathematical Horizons* (in Danish), (Eds.: Carsten B. Hansen, Per C. Hansen, Vagn L. Hansen, and Mette M. Andersen), pp. 50–61, DTU (2009). Presentation (in Danish): [DTU Orbit reference to presentation](#), download *.pdf full text book from: [Matematiske Horisonter](#)
- (94) *Geometric Operations in Plane and Space*, Notes (in Danish), Department of Mathematics; Upgraded yearly in compatibility with the course of the same name: 01999 Geometric Operations in Plane and Space. [Version online](#).
- (95) (With M. May et al.) *Constraints on reusability of learning objects: Didactic aspects of modular e-learning in engineering education*. CSEDU 2010 - 2nd International Conference on Computer Supported Education, Proceedings 2010, Vol. 2, pp. 325–332.
- (96) (With Karsten Schmidt et al.) *e-Notes for Mathematics 1 at DTU*, <http://01005.mat.dtu.dk/>
- (97) (With H. C. Hansen et al.), *Modern Math Skills – from K1 to K12* (in Danish). A report to the Ministry of Education, Published online: [Færdighedsrapporten](#)
- (98) (With H. Buhl and J. Martens), *IMAGINARY* in Matilde (Danish Mathematical Society Newsletter) 47 (2013) 8–10.
- (99) Modules for *Module Math* (in Danish). [SVD in Plane and Space](#) and [Curved Curves in Plane and Space](#) (2014).
- (100) *Det er menneskeligt at fejle (To err is human)* in [MONA 2020–4](#). A commentary to a previous article by Kasper Bjerling Søby Jensen.
- (101) (With Carl Winsløw, Lisbeth Fajstrup, Niels Grønbæk, Britta Jesen, and David Lando), *Stands den stille amputation af gymnasial matematik*, [Berlingske Tidende](#), March 16 2021.

Glasgow Mathematical Journal
 Journal of Topology
 The Journal of Geometric Analysis
 Computer Aided Geometric Design
 Illinois Journal of Mathematics
 Journal of the London Mathematical Society
 Proceedings of the London Mathematical Society
 Australasian Journal of Combinatorics
 Differential Geometry and its Applications
 Math Scand
 Geometric and Functional Analysis
 Acta Mathematica Scientia
 Journal of Elasticity
 Balkan Journal of Geometry and its Applications
 Appl. Math. J. Chinese Univ.
 Pacific Journal of Mathematics
 Geometriae Dedicata
 Universe MDPI
 International Journal of Disaster Risk Reduction
 Mathematics MDPI
 The Asian Journal of Mathematics
 Applied Mathematical Modelling
 ESAIM: Mathematical Modelling and Numerical Analysis
 Publicationes Mathematicae Debrecen
 SIAM Journal on Applied Algebra and Geometry
 Nonlinear Analysis
 Annali di Matematica Pura ed Applicata
 Annales Polonici Mathematici

SUPERVISION AND TEACHING

Supervised and Co-supervised Ph.D. theses

- ★ Jens Chr. Larsen, *Dynamical Systems and Semi-Riemannian Geometry*, Febr. 1991. (With Vagn Lundsgaard Hansen.)
- ★ Annette Simonsen, *Inverse Spectral Geometry*, July 1993.
- ★ Peter Røgen, *The Topology and Geometry of Knots and Links*, March 1999. (With Vagn Lundsgaard Hansen.)
- ★ Simon Lyngby Kokkendorff, *Geometry and Combinatorics*, January 2003. (With Poul G. Hjorth.)
- ★ Matteo Raffaelli, *The Geometry of Generalized Flat Ribbons*, December 2015 – December 2018. (With Jakob Bohr.)

- ★ Hjørdis Amanda Schlüter, *Acousto-Electric Tomography on Riemannian Manifolds*, September 2019 – August 2022. (With Kim Knudsen.)
- ★ Frederik Möbius Rygaard, *Stochastic Riemannian Geometry with Applications to Data Modelling*, December 2022 – December 2025. (With Søren Hauberg.)

Supervised and Co-supervised Master-, Bachelor-, and Diploma-theses

- ★ Jens Chr. Larsen, Master thesis, *Gradient Fields on a Semi-Riemannian Manifold (Danish)*, July 1988. (With V. Lundsgaard Hansen.)
- ★ Jonas Berg, Master thesis, *Some Partial Differential Equations from Geometry (Danish)*, Aug. 1988. (With V. Lundsgaard Hansen.)
- ★ Michael Mikkelsen, Master thesis, *On the Geometry of Static Space Times (Danish)*, Aug. 1989.
- ★ Ole Smith, Master thesis, *Selected Mathematical Methods from Analytical Mechanics (Danish)*, Jan. 1990.
- ★ Annette Simonsen, Master thesis, *On the Geometric Properties of the Laplace Operator (Danish)*, Aug. 1990.
- ★ Thomas Randrup and Peter Røgen, Master thesis, *How to Twist a Knot*, Jan. 1995. (With J. Gravesen.)
- ★ Johannes Rebel, Master thesis, *Tower of Babylon*, Aug. 1995. (With J. Gravesen.)
- ★ Jakob Hall, Master thesis, *Twisted 2-D Elastica*, Febr. 1998. (With J. Gravesen.)
- ★ Erik Flensburg, Master thesis, *Simulated Dynamics of Semi-regular Polyhedra*, June 1998. (With J. Gravesen.)
- ★ Peter Nilsson, Master thesis, *A Geometric Analysis of the Double Pendulum Dynamics*, Febr. 1999.
- ★ Andrew C. Mumm, Master thesis, *The Geometry of Kerr Spacetimes*, Dec. 2003.
- ★ Helle Johansson, Master thesis, *Minimal surfaces in proteins*, June 2007. (With T. Blicher and P. Røgen.)
- ★ Sigmund Vestergaard, Master thesis, *Geometro-dynamical Growth Models of Forest fire Fronts*, March 2009.
- ★ Jakob Møller-Andersen, Bachelor thesis, *Isometric Embeddings of Warped Products during Ricci Flow*, June 2011.
- ★ Rubin Truong Quach, Bachelor thesis, *Geodesic Trajectories, their Reflections and Distributions in Surfaces with Boundaries*, June 2011. (With Anton Evgrafov).
- ★ Nicolai Skov Johnsen, Bachelor thesis, *Geodesic Trajectories, their Reflections and Distributions in Surfaces with Boundaries*, June 2011. (With Anton Evgrafov).
- ★ Coilin P. Boyan Jeritslev, Bachelor thesis, *The Möbius Strip*, July 2011. (With Jens Gravesen.)

- ★ Andreas Aabrandt, Master thesis, *Low-Dimensional Topology with Applications to Biometrics*, June 2012. (With Vagn Lundsgaard Hansen).
- ★ Lasse Birk Olesen, Thesis for Diploma in Mechanical Engineering, *Mathematical Modelling of Contact between rough Surfaces*, August 2012. (With Peder Klit).
- ★ Sophia Bardenfleth, Bachelor thesis, *Geometric Analysis and Construction of Implicit Surfaces in 3D*, June 2013. (With Andreas Bærentzen).
- ★ Jakob Møller-Andersen, Master thesis, *Finsler Comparison Geometry and Model Spaces*, July 2013.
- ★ Matteo Raffaelli, Master thesis, *Quaternions and the geometry of flat ribbons*, July 2015. (With Jakob Bohr).
- ★ Thomas Dyhr, Thesis for Diploma in Civil Engineering, *Cast in Place Concrete Constructions with Complex Geometries*, January 2016. (With Stefan Brandt and Jakob Drachmann, CN3).
- ★ Peter Lindqvist, *Gravitational waves in FRW spacetimes*, Bachelor thesis, June 2016.
- ★ Simon Rask Langkilde, *Gravitational waves in FRW spacetimes*, Bachelor thesis, June 2016.
- ★ Philip Frederik Schaumburg-Müller, *Surface approximation via flat ribbons*, Bachelor thesis, June 2016.
- ★ Tim Felle Olsen, *Surface approximation via flat ribbons*, Bachelor thesis, June 2016.
- ★ Sofie Haue Korsbak, Thesis for Diploma in Civil Engineering, *Geometrically complex building envelopes made of glass*, May 2017. With Jacob Drachmann, 3XN.
- ★ Gustav Steenberg Homøe, Thesis for Diploma in Civil Engineering, *Parametric Design with Circle Packings*, January 2018.
- ★ Simon Rask Langkilde, Master Thesis, *Lorentzian Finsler Geometry*, July 2019.
- ★ Frederik Möbius Rygaard, *Statistics on Riemannian Manifolds*. Bachelor thesis, July 2020. With David Ekland and Søren Hauberg.
- ★ Michel Nikolaj Michelsen, *Bifurcations of geodesics in Riemannian manifolds*. Master Thesis, October 2020.
- ★ Kasper Dornonville de la Cour, *Construction and Analysis of Critical Nets in Riemannian Manifolds*. Bachelor thesis. December 2020.
- ★ Frederik Listov-Saabye Pedersen, *Differential geometry and Relativity Theory*. Bachelor thesis. December 2020. With Poul Hjorth.
- ★ Aske Peter Banke, *Circle packings*. Diploma thesis. November 2021. With David Brander.
- ★ Frederik Möbius Rygaard, *Towards a theory for stochastic Riemannian manifolds*. Master thesis. June 2022. With Søren Hauberg.
- ★ Johan Sjøeborg Nielsen, *Circle packings*. Bachelor thesis. June 2022. With David Brander.

- ★ Line Glade, *MathApps constructions in Maple and from Maple to Möbius*. Bachelor thesis. December 2022. With David Brander.
- ★ Kasper Dornonville de la Cour, *Geometric modelling and analysis of wildfire fronts*. Master thesis. January 2024.
- ★ Bastian Gulstad Ravn, *Minimal surfaces*. Bachelor thesis. Due June 2024. With David Brander.
- ★ Simon Gade, *Particle repulsion population of holes on surfaces*. Bachelor thesis. Due June 2024. With David Brander and Per Gøttermann.

DISSEMINATION

Lexicographical Work

Selected articles for The Danish Encyclopedia – out of a total of 56 articles appearing (from 2020) in lex.dk, see the [full list of on-line contributions](#).

- Afstand (Distance)*. Vol **1** (1994) p. 131.
- Areal (Area)*. Vol **1** (1994) p. 566.
- Bue (Arc)*. Vol **3** (1995) p. 453.
- Buelængde (Arc Length)*. Vol **3** (1995) p. 454.
- Chern, Shiing-Shen*. Vol **4** (1996) p. 150.
- Differentialgeometri*. Vol **5** (1996) pp. 129–130.
- Fladeareal (Surface Area)*. Vol **6** (1996) p. 404.
- Flisebelægning (Tilings)*. Vol **6** (1996) p. 430.
- Integralgeometri (Integral Geometry)*. Vol **9** (1997) p. 413.
- Katenoide (Catenoid)*. Vol **10** (1998) p. 387.
- Kaustisk Flade (Focal Surface)*. Vol **10** (1998) p. 399.
- Normalsnit (Normal Section)*. Vol **14** (1999) p. 297.
- Oskulation (Osculation)*. Vol **14** (1999) p. 563.
- Plateau's problem*. Vol **15** (1999) p. 294.
- Pol (Pole)*. Vol **15** (1999) p. 322.
- Polar figur (Polar figure)*. Vol **15** (1999) p. 323.
- Projektion (Projection)*. Vol **15** (1999) p. 478.
- Pseudosfære (Pseudosphere)*. Vol **15** (1999) p. 519.
- Ricci-Curbastro, Gregorio*. Vol **16** (2000) p. 185.
- Riemannsk Geometri (Riem. Geometry)*. Vol **16** (2000) p. 195.
- Røring (Contact of order d)*. Vol **16** (2000) p. 464.
- Saddelpunkt (Saddle point)*. Vol **16** (2000) p. 484.
- Sfærisk ekscess (Sph. excess)*. Vol **17** (2000) p. 135.
- Sfærisk geometri (Sph. geometry)*. Vol **17** (2000) p. 135.
- Sfærisk trigonometri (Sph. trig.)*. Vol **17** (2000) p. 135.
- Superellipse (Super ellipse)*. Vol **18** (2000) p. 288.
- Trestangskurve (Three bar mechanism curve)*. Vol **19** (2001) p. 241.
- Variationsregning (Variational calculus)*. Vol **19** (2001) p. 30–31.

Kepler's formodning om kuglestablinger (Kepler's sphere packing conjecture). Vol **21** (2002) p.366.

Outreaches, talks, and consultancy work

- *Time-stochastic Zermelo Navigation – for Vikings, Albatrosses and microswimmers*. Seminar talk at Department of Mathematics, University of Murcia, Spain, December 14. 2023.
- *Research visit to Department of Mathematics, University of Murcia, Spain*, November 25. - December 22. 2023. Fully supported by grant from University of Murcia.
- Host for guest PhD student Enrique Pendás-Recondo, Universidad de Murcia, Spain. Research visit to DTU, June 1. – July 31. 2023.
- *Maple workbooks with MathApps for training and homework*. Presentation at Maple Day V seminar. DTU, October 4. 2023.
- Research stay and participation in workshop *Workshop on Riemannian Geometry and Differential Operators*, GRYOD, Castellon de la Plana, Spain, September 24 – October 1, 2023. Hosted by Vicent Gimeno i Garcia and Vicente Palmer.
- Organizer (together with Niels Martin Møller (Copenhagen University) and Francisco Martin (University of Granada, Spain)): The Geometry Session at *29th Nordic Congress of Mathematicians with EMS* in Aalborg, Denmark, 3 - 7 July 2023. <https://ncm29.math.aau.dk/>.
- *A view towards some applications of Riemann-Finsler geometry*. Invited colloquium talk at Lund University, 26.04.23. [Link](#).
- *Geodesics*. Invited talk at the Georg Mohr winners' seminar at Mærsk Mc-Kinney Møller Videncenter, Sorø, 27.02.23. [Link: https://www.georgmohr.dk/vinderseminar/](https://www.georgmohr.dk/vinderseminar/)
- Organizer (together with John Wyller (NMBU, Oslo), Karsten Schmidt, and Lene Matthisson): The InterMat seminar *How do we elevate and enhance mathematics learning via programming?* at DTU, 24.02.23. [Link to press article](#), [Link to event materials](#).
- Research visit to Universitat Jaume I, Castellon, Spain, February 02. - February 19. 2023.
- External opponent at the PhD thesis and defense by Erik Sarrion, University Jaume I, Castellon, Spain, February 17. 2023.
- Research visit to Universidad de Murcia, Spain, January 20. - January 26. 2023.
- Invited talk at the [Workshop on Differential Geometry](#), Granada, Spain, January 13. - January 19. 2023.
- Invited panelist at *Debatmøde om matematikundervisning i anledning af rapporten [Fælles udvikling af Matematik]*, NCUM, DPU Emdrup, December 8. 2022.
- *Comments on the recent report from the UVM appointed math expert group – from a Maple inspired standpoint*, Presentation at Maple Day IV seminar. DTU, October 5. 2022.

- Organizer of [Geometry Workshop](#), DTU Compute, June 8. 2022.
- Host for guest PhD student Enrique Pendás-Recondo, Universidad de Murcia, Spain. Research visit to DTU, May 1. – July 31. 2022.
- Organizer of [Workshop on Geometric and Topological Analysis](#), DTU Compute, April 1. 2022.
- *Geometric Potential Theory for Conductive Riemannian Manifolds*. Invited talk at the AMS Joint Mathematics Meeting, 2022, special session *Heat content, exit time, and geometric analysis*. Organized by Patrick McDonald and Jeff Langford. Seattle, USA, January 2022; postponed to virtual session, April 2022.
- *Conductive Riemannian Manifolds*. Invited talk at the *Workshop on Riemannian Geometry and Differential Operators*, Universitat Jaume I, Castellon, Spain, March 23-25, 2022. Organized by Vicente Palmer and Vicent Gimeno.
- *Conductive Riemannian Manifolds*. Invited talk at the *GeoTop Hybrid Masterclass/Workshop: Mean Curvature Flow and Related Topics*, Copenhagen University, March 7-11, 2022. Organized by Niels Martin Møller and John Ma.
- *Shortest pathways; Mathematics, geometry, graph theory, networks, applications*. Presentation at the IT camp for girls, October 20. 2021. [Link](#).
- *Mathematics and Maple*, Presentation at Maple Day III seminar. DTU, September 15. 2021.
- *Dualities in the teaching of mathematics*, presentation of the [report](#) (Faglighed i Gymnasiet – Matematik) at the virtual conference *Fremtidens Matematikundervisning, Mathematics Education in the Future*, May 26, 2021, <https://edtalk.dk/fremtidens-matematikundervisning/>.
- *Introduction to Differential Geometry*. Tutorial at the *IPwin2021 Virtual PhD Winter School at DTU on Inverse problems in partial differential equations and geometry*, January 25-29, 2021. [Link](#).
- *Mathematics and Maple – for learning, teaching, research, and instrumental genesis*, Presentation at Maple Day II seminar. DTU, September 3. 2020.
- *SOPs4RI Focus Group Study interview and discussion on promoting a strong research integrity culture*. Att.: The Danish Centre for Studies in Research and Research Policy, Dept. of Political Science, Aarhus University, February 28. 2020.
- Chairman for expert committee work on the survey *Faglighed i Gymnasiet: report 2 on Mathematics*. Ministry of Education and Southern Danish University, February 2020. [Link](#).
- (With Kim Knudsen and Hjørdis A. Schlüter), *Acousto-electric tomography on Riemannian manifolds*. Posters presented by Hjørdis at Inverse Days, held in Jyväskylä, Finland, December 16 – 18,

- 2019, [Link](#), and at DTU, DIKU & AAU Summer School on Inverse Problems, held in Fåborg, Denmark, August 10–14, 2020, [Link](#).
- Co-organizer (with Dean Philip Binning, Associate Professor Brian Nyvang Legarth, DTU Mechanical Engineering, and Educational Consultant Tina Elisabeth Bahrenscheer) of *DTU Teaching Seminar*, November 18, 2019. [link](#).
 - *All the way with MathApps*. Organizer and presenter of workshop session at the Digital-Ed Connect Summit in Delft, Holland, October 31.– November 1, 2019. [link](#).
 - *Geometric morphology with IT*. Presentation at the IT camp for girls, October 18, 2019. [Link](#).
 - Member of prize committee at DTU Compute’s Ph.D. Bazaar, May 10, 2019. Participated in the evaluation of showcases, videos, and podcasts presented at the Bazaar.
 - *Training, learning, and matematizing via Maple’s MathApps*. Presentation at Maple spring seminar. DTU, May 2, 2019.
 - *Building bridges from high school to DTU – examples of initiatives in mathematics*. Presentation at DTU in connection with a visit by representatives of Taiwan education system, 29.03.19.
 - *Finsler geometry for wildfire spread modelling*. Invited talk at the Winter School on Finsler Geometry in Granada, Spain, January 14th – 18th, 2019; Att.: Miguel Ángel Javaloyes, University of Murcia, and Miguel Sánchez, University of Granada.
 - Evaluator for the hiring of a tenure track lecturer at Chalmers University, October 2018.
 - *A Finsler geometric paradigm for wildfire spread modelling*. Invited talk at the satellite workshop *Mathematics and wildfires*, November 7th – 9th, 2018 at Coimbra University, Portugal; Att.: José Francisco Rodrigues, University of Lisbon. [link](#).
 - *Frontals and cut loci from time-dependent differential Finsler-inclusions*. Invited talk at *The Cut Locus*, September 3rd – 6th, 2018; Att.: M. Tanaka, Tokai University, Sapporo Campus, Japan. [link](#).
 - *Manifolds on fire II*. Invited talk at *The 13th Geometry Day*, May 16, 2018; Att.: Sigmundur Gudmundsson, University of Lund, Sweden. [Link](#).
 - Host for guest PhD student David Rochera, Universidad de Valencia, Spain. Research visit March 31. – July 6, 2018.
 - Member of the evaluation committee for the *Danish Mathematical Society prize for the best master of science thesis 2017*.
 - Member of evaluation committee for the hiring of an assistant professor in Computational Mathematics, Aalborg University, April 2018.
 - Member of the evaluation committee for the defence of the PhD thesis of Mette Bjerre, *The Hitchin connection for the quantization of the moduli space of parabolic bundles on surfaces with marked points*, Department of Mathematics, Aarhus University, 13.03.18.

- Member of the evaluation committee for the defence of the PhD thesis of Kenneth Rasmussen, *Hitchin Connections for Various Families of Kähler Structures*, Department of Mathematics, Aarhus University, 12.01.18.
- Invited panelist at CMU conference, 15.11.17, at Center for Computer based Mathematics Teaching, att. Niels Grønbæk, Copenhagen University, discussing the rôle of computers in mathematics education. [Link to agenda](#) and [Link to videos of presentations and discussions](#).
- *Finsler metrics and Huyghens' principle*. Invited talk at the *Workshop and Masterclass on Geometric Analysis on Noncompact Manifolds*, October 9–13, 2017; Att.: Center for the Mathematics of Quantum Theory, Department of Mathematics, University of Copenhagen. [link](#).
- *Tractors and Tractrices in Riemanniannian manifolds*. Invited talk at the *Workshop on Geometric Analysis - Homage to Olga Gil-Medrano*, September 5th to 8th, 2017; Att.: Vicente Miquel and Oscar Maciá, Department of Mathematics, University of Valencia, Spain. [link](#).
- *Geometric Analysis and Parametric Design*. Invited presentation to the winners of the 2017 Georg Mohr Competition, 7.03.17 at the Science Talents Center, Sorø; Att.: Kirsten Rosenkilde.
- *Rethinking the Construction Industry – Bladerunner*. Invited presentation to visiting students from Antwerp Management School, 20.03.17; Att.: Ellens Als, DTU Executive School of Business.
- *Fejende Flotte Flader (Sweepingly Beautiful Surfaces)*. Invited presentation at the Regional Meeting for Gymnasium Math Teachers, Vejen, 08.02.17; Att.: Troels Todsén; See [link](#).
- *A Finsler geometric attack on wildfires*. Invited talk at the Applied Mathematics Section at the 27.th Nordic Congress of Mathematicians, Stockholm, March 16–20, 2016; See [link](#).
- *Profiling Mathematics – internally and externally*. Invited presentation at the hearing [*What shall we do about Mathematics?*], organized by Danske Gymnasier at Christiansborg, February 2, 2016; See [link to Danske Gymnasier](#); [link to presentation *.pdf](#).
- *A Finsler geometric attack on wildfires*. Invited talk at joint meeting of the Spanish and Brazilian mathematical societies, in Fortaleza, Brazil, December 7-10, 2015; See [link](#).
- *A Finsler geometric attack on wildfires*. Invited presentation at Experimental Mathematics @ KU, November 27. 2015. Att.: Michal Jan Adamaszek. [Link to *.pdf](#).
- *Geometric potential Analysis for minimal Surfaces and Foams*. Invited talk at the minisymposium on *Symplectic Structures in Geometric Analysis* in connection with the Jahrestagung der Deutschen

- Mathematiker-Vereinigung 2015 in collaboration with the Danish Mathematical Society, Hamburg, 21.–25.09.2015, see [link](#).
- Member of the evaluation panel for the defence of the doctoral thesis of Jonas Nordström, *On the Existence of Complex Harmonic Morphisms*, Mathematics, Faculty of Science, Lund University, Sweden, 09.09.15.
 - Presentation at Innovation Seminar, Roskilde Gymnasium, 24.08.15; Att.: Thomas Schausen and Jacob Groth-Jensen.
 - Presentation at Maplesoft workshop *How do I solve . . .* at DTU Compute, 20.08.15, see [link](#).
 - Participation in conference: Bridges Baltimore 2015 : Mathematics, Music, Art, Architecture, Culture; Baltimore, July 29. – August 1. 2015; [Link via DTU Orbit](#).
 - Contribution to [Inside Compute newsletter, Issue No. 6 - June 30, 2015]: *Wildfires and Finsler geometry - a perfect match*, see [link](#).
 - Invited talk: *Curvature of curves, surfaces and foams*. Contribution to UNF Mathematics Camp 2015, August 23. at DTU. Organized by UNF, Ungdommens Naturvidenskabelige Forening. See [link](#).
 - Invited talk: *Experiments with Curvature*. Contribution to DASG in-service training course "Mathematics, it and learning", April 15. at Brogaarden, Middelfart, att.: Olav Lyndrup.
 - Invited talk: *Curves, Surfaces, and Foams in Plane and Space*, Conference for high school teachers at Department of Mathematics, Copenhagen University, organized by Niels Grønbaek, November 12.–14. 2014. [Link](#).
 - Invited talks: *Innovative Competencies – from the point of view of the university educations in science, technology, and mathematics*, organized by the Ministry of Education for Danish high school teachers. Aarhus, 18.09.14 and Frederiksberg 26.09.14. Also presented at the regional meeting for [Talentraketten](#), Fredericia, 10.11.14. [Slides](#).
 - Video/film: *Foam Structures and Minimal Surfaces*. Arranged and edited by Bjørn Grøn, Bjørn Felsager, Bodil Bruun, and Olav Lyndrup in collaboration with David Binzer, Erik Damberg, and Ulla Korgaard, 2015, for the project: *10 films about research in mathematics*. [Link to the 10 contributions on Gymportalen.](#); [Link to specific film on youtube](#); [Link to specific material on Gymportalen](#).
 - Moderator at the conference *Future of Mathematics*, organized by Niels Grønbaek, Copenhagen University, CMU, and Karsten Schmidt, DTU Compute, 21.05.14. http://www.math.ku.dk/forskning/cmu/konference_fm/
 - Invited speaker at the Differential Geometry Workshop at Lund University, Sweden, organized by Sigmundur Gudmundsson, 16.05.14. Presentation: *Fields of Pointed Ovaloids – A Geometric Analysis of Envelopes*.

- Participated in MaDiFa, Math for the Digital Factory, workshop in Berlin, May 7 - 9, 2014. Presentation: *Hot Wire Cuttings for the Building Industries*.
- Invited Pearl Lecture at Aalborg University, organized by Martin Raussen, May 2, 2014. Presentation: *Fields of Pointed Ovaloids – A Geometric Analysis of Envelopes*.
- Invited speaker at *Imaginary – with the eyes of mathematics*, organized by IDA (Danish Engineers Association) at the Steno Science Museum, Aarhus, Denmark, August 31, 2013. Presentation: *Minimal surfaces and the 3D printing technique*.
<http://ida.dk/en/event/307815>
- Invited speaker and member of poster evaluation committee at Ph.D. Summer School on *Tensors and Tensor Fields in Imaging*, Marstal, Ærø, Denmark, August 18 - 23, 2013. Presentation: *Diffusion Tractography – A Geometric Analysis of Ovaloids*.
<http://www2.imm.dtu.dk/projects/tensor/index.html>
- Invited speaker at the Differential Geometry Day at DTU Compute, organized by David Brander, 06.06.13. Presentation: *Heat, Waves, and Fire – A geometric Analysis*.
- Invited panelist at *21st Century Mathematics conference*, Stockholm, Sweden, April 22-24, 2013. Organized by CCR Center for Curriculum Redesign, Co. Charles Fadel. Presentation: *Integrated Disciplines for Mathematics*. [Link](#)
- Member of the evaluation panel for the defence of the doctoral thesis of Vicent Garcia Gimeno, *Creixement del volum i nombre de finals de subvarietats*, Departament de Matemàtiques, Universitat Jaume I, Castellon, Spain, 05.11.12.
- Invited presentation at DMUK (Danish Mathematics Teaching Commission) Fall Meeting at DTU, November 14, 2011. Presentation: *Mathematical skills and transfer problems*.
- Invited senior speaker at Geometric Analysis Seminar, Valencia, Spain, June 16-18, 2011. Presentation: *Manifolds on Fire*.
- Participation in the CDIO conference, DTU, June 20-22, 2011. Presentation with Lotte Bjerregaard and Henrik Almgaard, DTU Civil Engineering: *Mutual Workshops Enhancing Curriculum Integration*.
- Invited speaker at Geometry day, Lund, Sweden, 11.05.11. Presentation: *Manifolds on Fire*.
- Organizer (with Christian Thune Jacobsen, DTU Adgangskursus) of two-day *Maple Workshop* for 42 teachers from Danish highschools, at DTU Mathematics, August 24.-25, 2009. [Homepage](#)
- Invited speaker at Ph.D. Summer School on *Manifold Learning and Image Analysis*, Hven, Sweden, August 17 - 21, 2009. Presentation: *The Meaning of Curvature - A distance Geometric Approach*. [DTU Orbit reference](#)

- Organizer (with [David Brander](#), DTU Mathematics) of *Workshop on Discrete Differential Geometry* at DTU Mathematics, July 16, 2009. [Homepage](#)
- Organizer (with Christian Thune Jacobsen, Gammel Hellerup Gymnasium) of 3-step *Maple Workshop* for teachers from Gammel Hellerup Gymnasium and Virum Gymnasium, fall 2008.
- Invited talk at CDIO Regional Nordic meeting, October 21, 2008 at DTU: *Active math learning*.
- Participated in workshop: *Distance Geometry* at University of Salzburg, Austria, May 5 - 8, 2008. Presentation: *Roughly isometric minimal immersions into Riemannian manifolds*.
- Organizer of workshop: *First Year Mathematics at the Technical Universities, KTH, LTH, DTU*. Held at DTU Mathematics, April 21 - 22, 2008.
- Passed (with diploma) a compulsory two day in-service Epoxy Course, TEC Hvidovre, September 18 - 19, 2008. For secure handling and postprocessing of the output from the 3D printer.
- *DMF, Danish Mathematical Society Summer Camp at Aalborg University, August 13.–15. 2008* Presentations: *How to keep warm at a camp fire* and *Boomerang! Geometric Form and Function go into Action*.
- *Mini Science Camp, DTU*, December 16, 2007. Presentation: *Geometry: Form and Function go into Action*.
- *Matematicum - The Mathematical Inspiratorium at DTU*. Initiated July 2007. (With C. Henriksen and K. Schmidt.) Funded by the Danish Research Council, Birch & Krogboe Fund, DTU's Strategic Fund, Skoletjenesten, Danske Bank, and the Corrit Fund.
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- *Workshop on Geometry, Dynamics and Complex Analysis*, Workshop 24th. - 25th. November 2006. (Organizer together with J. Gravesen.)
- *Geometry and Global Analysis*, Workshop 3rd. - 4th. November 2003. (Organizer together with J. Gravesen.)
- *DMF Preprint Server*, National preprint server for mathematics. (Member of the steering committee.) Inputs to MPRESS. Delivered August 2004 to sponsor: DEF, Denmark's Electronic Research Library.
- *DMF Journal Database*, National database for mathematics journals. (Member of the steering committee, project coordinator with Technical Knowledge Center of Denmark.) Delivered November 2005 to sponsor: DEF, Denmark's Electronic Research Library.
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<http://www.emis.de/misc/cdrom/WMY2000/dk/zbl/Zentralblatt/>
- *DNL*, Danish Encyclopedia. (Author and figure maker.)
- *AN*, Aktuel Naturvidenskab. (Associate editor 1999–2005)
- *EMSnews*, Newsletter of the European Mathematical Society. (Associate editor 1999–2005.)
- *Ny Viden*, (New Knowledge) Mathematics lectures presented to Gymnasium students.

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- *Den skønne Matematik*. By journalist Allan Hansen in: DTU report 1994, p. 5.
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- Interviews with Tina George, Maplesoft, April 8. 2016:
High School Teachers Across Denmark Prepare Students for Post-secondary Education Using Maple. [Link to article](#).
Danish Professors Use Maple to Revolutionize Mathematics Teaching at Technical University. [Link to article](#).
- Interview with Mads Nyborg, Ingeniøren, 13.05.17: *Therefore, equations are equal to pleasure!* (in Danish): [Link to article](#).
- Invited articles in *Altinget*, 30.08.17: *The greatest pleasure is the pleasure of finding things out* and 21.09.17: *A needed invitation to the gymnasium math teachers*(both in Danish): [Link to articles](#).

- Interview with Rasmus Højmark Ravn, 28.09.17, *DTU Library is now 75 years – visions for the next 25 years.*

Exhibitions related activities

- *Minimal Surfaces*. Contribution to exhibition *På Kanten af Kaos - Nye Billeder af Verden*, Louisiana Museum, Humlebæk, Spring 1993. Cf. *Louisiana Revy* **33**, No. 2, (1993) p. 96 and 15.
- *On Boy's Surface*. Exposition on Boy's surface used by M. Genevey at the exhibition "Natur og Konstruktion", Helleruplund, Feb. 14. - March 4. 2000.
- *Boomerang workshop*. Exploration booth at the opening of the DNF National Science Festival 2000 at Ingeniørernes Hus, Copenhagen, 22.09.00.
- *The return of the Boomerang: A Geometric Challenge*. Workshop booth at the 10th International Congress on Mathematical Education. DTU, Copenhagen, Denmark; 4–11 July 2004. Also presented at the Lyngby Shopping Center, 03.07.04.
- *Matematicum*, <http://www.matematicum.dtu.dk/>, since 2007.
- *3D Prints for Imaginary*, Contributions to the Exhibition at Steno Science Museum, Aarhus, initiated in connection with the EMS/DMF joint mathematical weekend, April 4.–7. 2013.