CURRICULUM VITAE

Uri Michael **Ascher**

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I. **BIOGRAPHICAL DATA**

Present Rank:	Professor Emeritus (with honorary post-retirement appointment), since July 2018
Past Rank:	Full Professor (1986-2018)
Place of Birth:	Tel-Aviv
Date of Birth:	December 11, 1946
Citizenship:	Canadian, Israeli　　　**Sex:** Male
Marital Status:	Married, two children

II. **EDUCATION**

Tel-Aviv University, 1969, BSc, Applied Mathematics.

Tel-Aviv University, 1972, MSc, Applied Mathematics.

University of Minnesota, 1975, PhD, Computer Science.

University of Wisconsin, 1976, Postdoc, MRC.

III. PROFESSIONAL ACTIVITIES

Academic or professional awards and distinctions:

Fellow of the Royal Society of Canada, since 2018.

SIAM Fellow, Society for Industrial and Applied Mathematics, since 2010.

CAIMS Research Prize, Canadian Society for Applied and Industrial Mathematics, 2010.

UBC Killam Faculty Research Fellowship, 1988-89.

Google scholarly citations:
https://scholar.google.ca/citations?user=eX08ztMAAAAJ&hl=en

Editorial boards:

Associate Editor, Journal of Dynamics and Games (2019- present).

Associate Editor, Vietnam Journal of Mathematics (2012- present).

Associate Editor, SIAM J. Scientific Computing (2012-2017).

Associate Editor, SIAM Fundamentals of Algorithms book series (2009-2014).

Associate Editor, SIAM J. Control & Optimization (2008).

Associate Editor, BIT (2003-2010).

Associate Editor, Canadian Applied Mathematics Quarterly (1995-2017).

Associate Editor, SIAM J. Scientific Computing (1993-1998).

National and International Committees:

Member, AIP Scientific committee (2025)

Member, ICIPE Committee (2024).

Member, SIAM Dahlquist Prize Committee (2013).

Member, AMS ad hoc MCA Travel Grant Committee (2013).

Member, MCA Steering Committee (2011-2013).

Member, Fulbright Canada STEM Program Committee (2012-2015).

Member, CAIMS Research Prize Committee (2011-12).

Member, NSF Review Panel of Petascale Simulation and Analysis (2007).

Member, AARMS Scientific Advisory Panel (2003-2010).

Member, SCICADE Chairs Committee (2001-2005).

Member, Canadian Research Chairs College of Reviewers (2000-?).

Member, SIAM Working Group on Computational Sciences (1998-2001).

Member, SIAM Dahlquist Prize Committee (2001).

Member, NSERC ad hoc Committee for Discipline Restructuring (1998-99).

Member, NSERC Computer Science Reallocation Committee (1995; 1997).

Chair, NSERC Grant Selection Committee, Computing and Information Science (1994-95).

Member, NSERC GSC, Computing and Information Science, (1992-94).

Member, Fields Institute Board of Directors (1994-95).

Member, Fields Institute Council (representing CACS) (1996-99).

Member, CAMS (Canadian Applied Math Society) Council (1990-92).

Member, Review Panel of Applied Math Program, US Dept of Energy (1993).

National and international conferences and symposia organized (this century):

Organizing committee, BIRS workshop, Banff, June (2019).

Organizing committee, CMS special session, Vancouver (2018).

Organizing committee, PNWNAS, at UBC, Vancouver (2018).

Scientific committee, HPSC, Hanoi, Vietnam (2018).

Program committee, SCICADE, Potsdam, Germany (2015).

Scientific committee, HPSC, Hanoi, Vietnam (2015).

Steering committee (representing SIAM), 1st Math. Congress of the Americas (2011-2013).

Scientific committee, HPSC, Hanoi (2012).

Steering committee, Joint North-American Industrial & Applied Math, Mexico (2010).

Program committee, SIBGRAPI, Rio de Janeiro (2009).

Co-organizer of PNWNAS one day meeting at UBC, Vancouver (2009).

Program committee, SCICADE, Beijing (2009).

Scientific committee, HPSC, Hanoi (2009).

Scientific committee, Applied Inverse Problems, Vancouver (2007).

Scientific committee, HPSC, Hanoi, Vietnam (2006).

Program committee, SCICADE, Trondheim, Norway (2003).

Program committee, Hybrid Systems: Computation and Control, Stanford (2002).

Program committee, Fields Institute Thematic Year on Numerical Analysis (2001-02).

Chair, Organizing committees of SciCADE, Vancouver (2001).

UBC:

Acting Head (promotion & tenure), Department of Computer Science (2000).

Director, Institute of Applied Mathematics (IAM) (1993-98).

Member, Search Committee, Faculty of Science Dean (1998).

Member, Search Committee, Department of Mathematics Head (1997).

Associate Director PIMS/UBC (summer 1996).

Member, Executive Committee, Pacific Institute for the mathematical sciences (1995).

Member, Search Committee, Department of Computer Science Head (1994-95).

Member, Search Committee, IAM Director (1992-93).

Acting Head, Department of Computer Science (1987-88).

Research Grant Proposal referee:

NSERC, Killam, CRC, NSF, NATO, US-Israeli Foundation, US Army, European Commission, Austrian Research Agency, Dutch Research Agency, New Zealand Research Agency, Singapore Research Agency, Swiss Research Agency, BIRS

Journal Paper referee:

Siggraph, Journal of Computational Physics, SIAM Journal on Numerical Analysis, SIAM Journal on Matrix Analysis, SIAM Journal on Scientific Computing, ACM Trans. Math Software, Physica A, BIT, Math of Computation, ZAMM, IMA Journal on Numerical Analysis, Geophys. Journal Royal Astronomical Society, IEEE Trans. PAMI, Journal of Australian Math. Soc., Journal on Comput. Appl. Math., Math Models and Methods in Appl. Sc., Comm. Appl. Numer. Methods, IMACS Appl. Numer. Math., CVGIP, Linear Algebra and Applications, Automatica, Inverse Problems, The Visual Computer, FOCM, J. Scientific Computing, J. Mathematical Imaging and Vision, Numerical Algorithms, Intl. J. Numerical Methods in Engineering, ACM Trans. Graphics, IEEE PRLetters, ACM Computing Surveys.

IV. **INVITED LECTURES**

Several invitations for events in 2020-21 have been cancelled due to COVID-19

Invited conference and workshop lectures (this century):

In the list below, talks that were given in parallel sessions are in square parentheses.

1. [Minisymposium, SciCADE, Singapore, July 2024.]
2. Go20 conference, Malta, May 2024.
3. WSOPI workshop on "optimization and inverse problems", Florianopolis, Oct 2023.
4. [Minisymposium, ICIAM, Tokyo, Aug. 2023.]
5. Go20 conference, Malta, May 2023.
6. BIRS workshop on "Differential-Algebraic Equations and Operator Pencils", Mar 2023.
7. Research in Options, Rio de Janeiro, Aug 2022.
8. [Minisymposium, CAIMS, Kelowna, June 2022.]
9. SDIDE, Budapest, June 2022.
10. (Keynote) Symposium on Computer Animation (SCA), July 2019.
11. BIRS workshop on "Reconstruction Methods for Inverse Problems", June 2019.
12. Conference "Ha-Lu 2019", L'Aquilla, June 2019.
13. CIRM workshop on "Dynamics and Games", Luminy, June 2019.
14. BIRS workshop on "integrating the integrators", Dec 2018.
15. Summer school on visual computing, Shenzhen, July 2018.
16. Workshop on applied PDEs and kinetics, Vienna, Apr 2018.
17. [Minisymposium, HPSC, Hanoi, March 2018.]
18. Math, methods & modeling in biophysics, IMPA Rio, Nov 2017.
19. Mini-course, thematic program on Applied Inverse Problems, IMPA, Rio de Janeiro, Oct 2017.
20. Workshop on geometry & computation for interactive simulation, BIRS-CMO, Oaxaca, Mexico, Sep 2017.
21. Conference on recent advances in numerical analysis , Cambridge, UK, Aug 2017.
22. [Minisymposium, CAIMS, Halifax, July 2017.]
23. Nonlinear PDEs and scientific computing, Vienna, Dec 2016.
24. Workshop on control and inverse problems in PDEs, Huatulco, Mexico, Nov 2016.

25. Summer school Visual Computing, Shenzhen, China, July 2016.

26. Summer school Visual Computing, Qingdao, China, July 2016.

27. Nonlinear PDEs and scientific computing, Beijing, July 2016.

28. SDIDE, Trieste, June 2016.

29. [Minisymposium, WONAPDE, Concepcion, Chile, Jan. 2016.]

30. [Minisymposium, SciCADE, Potsdam, Sept. 2015.]

31. Workshop on porous media modeling in biological processes, Dundee, Aug 2015.

32. [Minisymposia (two talks), ICIAM, Beijing, Aug. 2015.]

33. (Semi-plenary) XX Colombian Congress of Mathematics, Manizales, July 2015.

34. [Minisymposium, HPSC, Hanoi, March 2015.]

35. Special session inverse problems, South Brazil Math, Florianopolis, Apr. 2014.

36. (Plenary speaker) ICNAAM, Rhodes, Greece, Sept. 2013.

37. [Minisymposium, SciCADE, Valladolid, Spain, Sept. 2013.]

38. Workshop on statistical and computational methods for inverse problems, CIMAT, Guanajuato, Mexico, Aug. 2013.

39. Workshop on multilevel methods and optimization, Weizmann, Rehovot, Israel, May 2013.

40. SDIDE, Pamplona, Spain, Apr. 2013.

41. BIOMATH 2013, Cabo Frio, Brazil, Mar. 2013.

42. [Special session, Functional DEs, CMS, Montreal, Dec. 2012.]

43. (Plenary speaker) ICAM, Jiao Tong U., Shanghai, April 2012.

44. [Minisymposium, HPSC, Hanoi, March 2012.]

45. Workshop on large-scale inverse problems and applications in the earth sciences, RICAM, Linz, Austria, Oct. 2011.

46. (Plenary speaker) ICNAAM, Halkidiki, Greece, Sept. 2011.

47. Workshop on analytic and geometric methods in medical imaging, Isaac Newton Inst., Cambridge, UK, Aug. 2011.

48. (Plenary speaker) Waves-2011, Vancouver, July 2011.

49. BIOMATH 2011, Foz de Iguazu, Brazil, Mar. 2011.

50. [Minisymposium, inverse problems and control, NAMIAM, Mexico, Dec. 2010.]

51. Workshop on optimal control and DAEs, BIRS, Banff, Oct. 2010.

52. Research Prize lecture, CAIMS Annual Conference, St. Johns, Newfoundland, July 2010.

53. Workshop on Inverse Problems, CIRM, Luminy, France, June 2010.

54. (Plenary speaker) CFL-80, Rio de Janeiro, Brazil, May 2010.

55. (Plenary speaker) South African Conference on Numerical and Applied Math, Stellenbosch, South Africa, Mar. 2010.

56. Workshop on multiscale methods, UFRJ, Rio de Janeiro, Feb. 2010.

57. BIRS Workshop on numerical analysis of multiscale computations, Banff, Dec. 2009.

58. (Plenary speaker) Conference on numerical differential equations, Halle, Germany, Sep 2009.

59. [Minisymposium, Applied Inverse Problems, Vienna, Austria, July 2009.]

60. (Plenary speaker) Conference on Scientific Computing, Geneva, Switzerland, June 2009.

61. Workshop on multiscale methods, Oberwolfach, Germany, June 2009.

62. [Minisymposium, SCICADE, Beijing, China, May 2009.]

63. [Minisymposium, High Performance Scientific Computing, Hanoi, March 2009.]

64. Israeli workshop on applied and computational mathematics, Tel Aviv, Dec. 2008.

65. LNCC-UFRJ workshop on partial differential equations, Rio de Janeiro, Aug. 2008.

66. Workshop on waves in fluids II. Paraty, Brazil, Aug. 2008.

67. (Plenary speaker) Modeling, Simulation and Optimization of Complex Processes, Heidelberg, July 2008.

68. [Special session on image processing, AMS/SMB conference, IMPA, Rio de Janeiro, June 2008.]

69. Workshop on simulating complex dynamical systems, Lorentz Center, Leiden, May 2008.

70. APPOPT, San Andres, Colombia, March 2008.

71. [Minisymposium on preconditioners, ICIAM, Zurich, July 2007.]

72. (Plenary speaker) SCICADE, St. Malo, France, July 2007.

73. Workshop on Multi-resolution and High Oscillation for Evolutionary Problems: Blow-up & Hamiltonian Systems, Bath, June 2007.

74. Intl. Workshop on multiscale analysis and applications, Singapore, Dec. 2006.

75. PNWNAS, SFU, Burnaby, Sep. 2006.

76. [Minisymposium, CAIMS-MITACS, York U., June 2006.]

77. (Plenary speaker) Applied Inverse Problems, Cirencester, England, June 2005.

78. (Plenary speaker) Conference on Scientific Computing, Nanjing, China, June 2005.

79. Thematic Program on Scientific Computation, IISc, Bangalore, India, Jan. 2005.

80. Workshop on Nanoscale Material Interface, IMS, NUS, Singapore, Jan. 2005.

81. Workshop on Parameter Estimation and Optimal Design of Experiments, Heidelberg, Germany, July 2004.

82. BIRS Workshop on Model reduction and Matrix Methods, Banff, Apr. 2004.

83. Workshop on Technological applications of PDEs, Florianopolis, Brazil, Feb. 2004.

84. IPAM Workshop on Computational methods in Inverse Problems, UCLA, CA, Nov. 2003.

85. AFOSR Workshop on Advances and Challenges in Time-Integration of PDE's, Brown U., Providence, RI, Aug. 2003.

86. PIMS Workshop on Numerical Linear Algebra, July 2003.

87. [Minisymposium, SCICADE, Trondheim, Norway, June 2003.]

88. High Performance Scientific Computing conference, Hanoi, March 2003.

89. IMA Workshop on Optimization in Simulation-Based Models, Minneapolis, Jan. 2003.

90. [Annual APICS, Mount Allison, Oct. 2002.]

91. SFB-conference on Computational Methods in Inverse Problems, Strobl, Austria, Aug. 2002.

92. (Plenary speaker) Workshop on Hybrid Systems: Computation and Control, Stanford, March 2002.

93. Fields Workshop on Computational Challenges in Dynamical Systems, Toronto, Dec. 2001.

94. Short course, SCICADE, Vancouver, July 2001.

95. (Keynote speaker) SIAM Annual Conference, San Diego, July 2001.

96. [CIMAF, Havana, Cuba, March 2001.]

97. Workshop on numerical methods for hyperbolic and kinetic equations, Catania, Italy, Feb. 2001.

Invited presentations (since 2010):

1. IAC, Bari, Italy, June 2024.

2. U. Shenzhen, Shenzhen, Aug 2023.

3. U. Navarra, Pamplona, June 2022.

4. UFSC, Florianopolis, July 2020 (online).

5. FGV, Rio de Janeiro, Feb 2020.

6. SCAIM, UBC, Sep 2019.

7. IMPA, Rio de Janeiro, Feb 2019.

8. FGV, Rio de Janeiro, Jan 2019.

9. U. Potsdam, Germany, June 2018.

10. Computer Science, Technion, May 2018.

11. Applied Math, Tel-Aviv U., May 2018.

12. SCAIM, UBC, Sep 2017.

13. Visual Computing Center, University of Shenzhen, China, April 2017.

14. Math and System Science, Chinese Academy of Science, Beijing, July 2016.

15. GSSI, U. L'Aquila, Italy, June 2016.

16. Information Engineering and Math, U. Siena, Italy, June 2016.

17. IMPA, Rio de Janeiro, Brazil, January 2016.

18. (Two talks) Math and System Science, Chinese Academy of Science, Beijing, August 2015.

19. Computer Science, UFRJ, Rio de Janeiro, June 2015.

20. Math, UFRJ, Rio de Janeiro, May 2015.

21. IMPA, Rio de Janeiro, Brazil, April 2015.

22. Science and engineering, Colombia National University, Manizales, May 2014.

23. Math, Colombia National University, Medellin, May 2014.

24. Mech Eng, COPPE/UFRJ, Rio de Janeiro, April 2014.

25. (Distinguished lecture) Math, Tulane University, October 2013.

26. Applied Math, Tulane University, October 2013.

27. National Lab for bio- and nano-technologies, Campinas, Brazil, April, 2013.

28. Dept. Computer Science, UFF, Niteroi, Brazil, April 2013.

29. Dept. Mathematical Sciences, UFPR, Curitiba, Brazil, March 2013.

30. (Distinguished lecture) Math, Baptist University Hong Kong, April 2012.

31. SIAT, Shenzhen, April 2012.

32. Center for Computational Math., U. Waterloo, Oct. 2011.

33. IMPA, Rio de Janeiro, Brazil, May 2011.

34. LNCC, Petropolis, Brazil, April 2011.

35. Numerical Mathematics, U. Cordoba, Argentina, April 2010.

36. Computer Graphics, IMPA, Rio de Janeiro, March 2010.

37. Mechanical Engineering, COPPE/UFRJ, Rio de Janeiro, March 2010.

V. **RESEARCH GRANTS and PERSONNEL**

Research or equivalent grants received in this century:

2022–2027, NSERC Discovery Grant: Computational methods involving differential equations in computer graphics, machine learning and inference problems, $41,000 per year (total $205,000).

2016–2022, NSERC Discovery Grant: Computational inverse problems, optimization, differential equations and applications, $46,000 per year (total $276,000).

2017-2021, Adobe Research Gift, $\approx \$26,000$.

2013–2015, CAPES Brazil, Science Without Borders Grant: Computational methods and inverse problems in the applied sciences, $\sim\$20,000$ per year (my share of a larger project; PI: J. Zubelli).

2011–2016, NSERC Research Grant: Numerical solution of differential problems with constraints and applications, $33,000 per year.

2006–2011, NSERC Research Grant: Numerical solution of differential problems with constraints and applications, $74,000 per year.

2007–2008, MITACS Grant: Simulating physics at interactive rates $97,500; one of three investigators (PI: D. Pai).

2001–2006, NSERC Research Grant: Numerical solution of differential problems with constraints and applications, $78,000 per year.

2002–2005, IRIS 4 Grant: Reality-based modeling and simulation of physical systems in virtual environments, $200,000 (averaged, per year); one of 5 major users (PI: W. Heidrich).

1999–2002, NSERC CRD Grant (consortium with 10 mining companies): Inversion and modeling of applied geophysical electromagnetic data $350,000 (averaged, per year); co-PI (PI: D. Oldenburg).

Theses supervised (completed):

YJ Chen, (joint supervision with Dr. D. Pai), "Integrators for Elastodynamic Simulation with Stiffness and Stiffening", Ph.D., November 2019.

T. Muller, "Wasserstein Generative Adversarial Networks and Beyond: Applications of Optimal Transport Theory to Machine Learning", B.Sc. Honours Directed Studies project, April 2020.

T. Matsumoto, "A Review on Progress in Accelerated Gradient Methods", B.Sc. Honours Directed Studies project, August 2019.

R. Wu, "Analysis of Generalized-α vs. θ-methods in Physics-based Computer Simulation of Soft-body Materials", B.Sc. Honours Thesis, April 2018.

E. Moyhedin-Kermani, (joint supervision with Dr. C. Greif), "Distributed Linear Programming with Apache Spark", M.Sc., December 2016.

K. Rothauge, (joint supervision with Dr. E. Haber), "The Discrete Adjoint Method for High-Order Time-stepping Schemes", Ph.D., December 2016.

R. Roosta-Khorasani, "Randomized Algorithms for Solving Large Scale Nonlinear Least Squares Problems", Ph.D., April 2015.

V. Albani (Main supervisor Dr. J. Zubelli), "Volatility calibration in equity and commodity markets by convex regularization", Ph.D., January 2012.

G. Jones (joint supervision with Dr. D. Pai), "Noisy Optimal Control Strategies for Modeling Saccades", M.Sc., December 2011.

H. Huang,"Efficient Reconstruction of 2D Images and 3D Surfaces", Ph.D., November 2008.

E. Boxerman (joint supervision with Dr. D. Pai), "Speeding up Cloth Simulation", MSc, December 2003.

D. Aruliah, "Fast Solver for Time-Harmonic Maxwell's Equations in 3D", Ph.D., August 2001.

P. Ziegler, "Wavelet radiosity in computer graphics", M.Sc., September 1998.

R. Spiteri (joint supervision with Dr. D. Pai), "Differential equations with inequality constraints", Ph.D., September 1997.

D. Moulton, "Nodal methods: analysis, performance and iterative solvers", Ph.D., November 1996.

S. Ruuth (joint supervision with Dr. B. Wetton), "Diffusion-generated motion by mean curvature", Ph.D., October 1996.

P. Lin, "Regularization methods for differential equations and singular constraints", Ph.D., December 1995.

X. Jiang, "Numerical simulations of semiconductor devices by streamline-diffusion methods", Ph.D., May 1995.

H. Chin, "Stabilization methods for simulations of constrained multibody dynamics", Ph.D., May 1995.

P. Carter, "Computational methods for the shape from shading problem", Ph.D., July 1993.

S. Ruuth (joint supervision with Dr. B. Wetton), "Implicit-explicit methods for time-dependent PDE's", M.Sc., April 1993.

P. Chan, "An algorithm for solving index 1 differential algebraic equations in boundary value problems", M.Sc., August 1989.

K. Scott, "A supra-convergent scheme for the solution of differential equations on an arbitrary mesh", M.Sc., July 1988.

P. Carter (joint supervision with Dr. M. Yedlin), "A multigrid method for determining the deflection of lithospheric plates", M.Sc., June 1988.

S. Adams, "Semiconductor device modeling using the multigrid method", M.Sc., June 1988.

A. Alon, "Model and solution strategy for the placement of rectangular blocks in the Euclidean plane", M.Sc., May 1986.

S. Jacobs, "On the implementation of a general solver for singular perturbation problems", M.Sc., October 1986.

Vivian Quek, "A numerical investigation of two boundary element methods", M.Sc., December 1984.

A. Delaney, "On the implementation of multigrid methods for the numerical solution of partial differential equations", M.Sc., November 1984.

M. Reimers (joint supervision with Dr. R. Miura), "On local mode analysis in multi-grid methods", M.Sc., August 1983.

T. Samson, "Interactive Least Squares Surface Fitting", M.Sc., May 1980.

Postdoctoral Fellows:

YJ Chen (2021-22)

X. Yang (2014-15) (joint with J. Zubelli)

A. De Cezaro (2012-13)

M. Holtzman-Gazit (2010-12) (principal co-supervisor: E. Haber)

K. v Doel (2007-11) (research associate; joint with D. Pai)

H. Huang (2009)

H. Silva (2006-07)

S. Mitchell (2005-06) (joint with R. Kuske)

K. v Doel (2005-07) (research associate; joint with S. Fels)

K. v Doel (2005-07) (research associate; joint with W. Heidrich)

O. Dorn (2000-2002) (joint with D. Oldenburg)

E. Haber (1999-2002) (research associate; joint with D. Oldenburg)

E. Haber (1998-99) (joint with D. Oldenburg and J. Varah)

S. Reich (1993)

D. Sidilkover (1989-90) (joint with M. Salcudean)

G. Bader (1984-85)

Sabbatical Visitors:

M. Kischinevsky (2015-16)

P. Lin (2005)

F. Abramovici (1997-98)

M. Lentini (1994)

Z. Ziegler (1993-94)

S. Pruess (1981-82)

Visiting students:

R. Kircheis (fall, 2011)

S. Houben (summer, 2001)

R. Riaza (summer, 1998)

VI. **PUBLICATIONS**

Books (refereed)

1. Ascher, U., and Greif, C., *A First Course on Numerical Methods*, approx. 550 pages, SIAM 2011.

2. Ascher, U., *Numerical Methods for Evolutionary Differential Equations*, approx. 400 pages, SIAM 2008.

3. Ascher, U., and Petzold, L., *Computer Methods for Ordinary Differential Equations and Differential-Algebraic Equations* , approx. 300 pages, SIAM 1998.

4. Ascher, U., Mattheij, R.M.M. and Russell, R.D., *Numerical Solution of Boundary Value Problems for Ordinary Differential Equations*, Prentice-Hall, 1988; republished as SIAM Classics, 1995 (approx. 600 pages).

5. Ascher, U., Russell, R.D. (Eds.), *Numerical Boundary Value ODE's*, Proceedings, Birkhauser, Boston, 1985.

Journal papers (refereed)

6. Larionov, E., Longva, A., Ascher, U., Bender, J., and Pai, D. (2024), "Implicit frictional dynamics with soft constraints ", *TVCG*, Aug. 2024, DOI: 10.1109/TVCG.2024.3437417 arXiv2211.10618.

7. Ascher, U., Larionov, E., Sheen, S.H., and Pai, D., "Simulating deformable objects for computer animation: a numerical perspective", *J. Computational Dynamics* 9(2), pages 47-68, Apr. 2022. DOI: 10.3934/jcd.2021021 https://arXiv2013.01891

8. Wang, B., Deng, Y., Kry, P., Ascher, U., Huang, H., and Chen, B. "Learning elastic constitutive material and damping models", *Pacific Graphics* 39 (7), pages 81-91, Nov 2020. DOI: 10.1111/cgf.14128

9. Chen, YJ., Sheen, S.H., Ascher, U., and Pai, D., "SIERE: a hybrid semi-implicit exponential integrator for efficiently simulating stiff deformable objects", *ACM TOG* 40, Issue 1, Article 3, Aug 2020. DOI: 10.1145/3410527

10. Ascher, U., "Discrete processes and their continuous limits", *J. Dynamics and Games* 7 (2), pages 123-140, Apr 2020. DOI: 10.3934/jdg.2020008

11. Ascher, U., and Huang, H. "Numerical Analysis in Visual Computing : What we can learn from each other", *Vietnam J. Math.*, 46, Aug. 2018. DOI: 10.1007/s10013-018-0299-6

12. Chen, E., Ascher, U., and Pai, D., "Exponential-Rosenbrock-Euler integrators for elasto-dynamic simulation", *IEEE Trans. Visualization and Computer Graphics*, 24(10), pages 2702-2713, Oct. 2018. DOI: 10.1109/TVCG.2017.2768532

13. Albani, V., Ascher, U., Yang, X., and Zubelli, J., "Data driven recovery of local volatility surfaces", *Inverse Problems and Imaging* 11(5), pages 799-823, Oct. 2018, DOI: 10.3934/ipi.2017038

14. Albani, V., Ascher, U. and Zubelli, J., "Local Volatility Models in Commodity Markets and Online Calibration", *J. Computational Finance* 21(5), pages 63-95, 2018. DOI: 10.21314/JCF.2017.345

15. Wang, B., Wu, L., Yin, K., Ascher, U., Liu, L., and Huang, H, "Deformation capture and modeling of soft objects", *ACM Trans. Graphics* 34(4) (SIGGRAPH), July 2015.

16. Ascher, U., and Roosta-Khorasani, F., "Algorithms that satisfy a stopping criterion, probably", *Vietnam J. Math.* 44, pages 49–69, 2016. DOI: 10.1007/s10013-015-0167-6

17. Roosta-Khorasani, F., Szekely, G. and Ascher, U., "Assessing stochastic algorithms for large scale nonlinear least squares problems using extremal probabilities of linear combinations of gamma random variables", *SIAM J. Uncertainty Quantification* 3, (2015), DOI: 10.1137/14096311X.

18. Roosta-Khorasani, F., and Ascher, U., "Improved bounds on sample size for implicit matrix trace estimators", *J. Foundations of Comp. Math.* 15 (2015), pages 1187–1212. DOI: 10.1007/s10208-014-9220-1.

19. Roosta-Khorasani, F., van den Doel, K. and Ascher, U., "Data completion and stochastic algorithms for PDE inversion problems with many measurements", *J. ETNA* 42 (2014), pages 177–196.

20. Roosta-Khorasani, F., van den Doel, K. and Ascher, U., "Stochastic algorithms for inverse problems involving PDEs and many measurements", *SIAM J. Scient. Comput.*, 36 (2014), pages s3–s22, DOI: 10.1137/130922756.

21. Huang, H., Yin, K., Gong, M., Lischinski, D., Cohen-Or, D., Ascher, U., and Chen, B., ""Mind the gap": tele-registration for structure-driven image completion", *ACM Trans. Graphics 32(5)* (SIGGRAPH Asia), 2013.

22. Huang, H., Wu, S., Gong, M., Cohen-Or, D., Ascher, U., and Zhang, H., "Edge aware point set resampling", *ACM TOG* 32, Issue 1, Article 9, 2013.

23. van den Doel, K., and Ascher, U., "Adaptive and stochastic algorithms for EIT and DC resistivity problems with piecewise constant solutions and many measurements", *SIAM J. Scient. Comput.*, (2012), DOI: 10.1137/110826692 .

24. van den Doel, K., and Ascher, U., "The chaotic nature of faster gradient descent methods", *J. Scient. Comput.*, 51 (2012), pages 560–581.

25. van den Doel, K., Ascher, U., and Pai, D., "Source localization in electromyography using the inverse potential problem", *Inverse Problems*, 27 (2011), 025008.

26. Huang, H., and Ascher, U., "Faster gradient descent and the efficient recovery of images", *Vietnam J. Math.*, 42 (2014), pages 115–131, DOI: 10.1007/s10013-013-0055-x .

27. Ascher, U., "Surprising computations", *Applied Numer. Math.*, 62 (2012), pages 1276–1288.

28. van den Doel, K., Ascher, U., and Leitao, A., "Multiple level sets for piecewise constant surface reconstruction in highly ill-posed problems", *J. Scient. Comp.*, 43 (2010), pages 44-66.

29. Huang, H., Li, D., Zhang, H., Ascher, U., and Cohen-Or, D., "Consolidation of unorganized point clouds for surface reconstruction", *ACM Trans. Graphics* 29(5) (SIGGRAPH Asia), 2009.

30. Ascher, U., van den Doel, K., Huang, H., and Svaiter, B., "Gradient descent and fast artificial time integration", *M2AN*, 43 (2009), pages 689–708.

31. van den Doel, K., Ascher, U., and Pai, D., "Computed myography: three dimensional reconstruction of motor functions from surface EMG data", *Inverse Problems*, 24 (2008), 065010.

32. Huang, H., and Ascher, U., "Fast 3D surface mesh denoising with edge preservation and mesh regularization", *SIAM J. Scient. Comput.*, 31 (2008), pages 74–93.

33. van den Doel, K., and Ascher, U., "Real-time numerical solution of Webster's equation on a non-uniform grid", *IEEE Trans. Audio, Speech and Language Processing*, 16 (2008), pages 1163–1172.

34. Huang, H., and Ascher, U., "Fast denoising of surface meshes with intrinsic texture", *Inverse Problems*, 24 (2008) 034003 (18pp; featured article).

35. Haber, E., Heldmann, S., and Ascher, U., "Adaptive finite volume method for distributed non-smooth parameter identification", *Inverse Problems*, 23 (2007), pages 1659–1676.

36. van den Doel, K., and Ascher, U., "Dynamic level set regularization for large distributed parameter estimation problems", *Inverse Problems*, 23 (2007), pages 1271–1288.

37. Ascher, U., Huang, H., and van den Doel, K., "Artificial time integration", *BIT*, 47 (2007), pages 3–25.

38. van den Doel, K., and Ascher, U., "On level set regularization for highly ill-posed distributed parameter estimation problems", *J. Comp. Phys.*, 216 (2006), pages 707–723.

39. Ascher, U., Haber, E. and Huang, H., "On effective methods for implicit piecewise smooth surface recovery", *SIAM J. Scientific Computing*, 28 (2006), pages 339–358.

40. Ascher, U., and McLachlan, R., "On symplectic and multisymplectic schemes for the KdV equation", *J. Scientific Computing*, 25 (2005), pages 83–104.

41. Haber, E., Ascher, U., and Oldenburg, D., "Inversion of 3D electromagnetic data in frequency and time domain using an inexact all-at-once approach", *J. Geophysics*, 69 (2004), pages 1216–1228.

42. Ascher, U., and McLachlan, R., "Multisymplectic box schemes and the Korteweg–de Vries equation", *Applied Numerical Mathematics*, 48 (2004), pages 255–269.

43. Ascher, U., and Boxerman, E., "On the modified conjugate gradient method in cloth simulation", *The Visual Computer*, 19 (2003), pages 526–531.

44. Aruliah, D. and Ascher, U., "Multigrid preconditioning for time-harmonic Maxwell's equations in 3D", *SIAM J. Scient. Comput.*, 24 (2003), pages 702–718.

45. Ascher, U., and Haber, E., "A multigrid method for distributed parameter estimation problems". *J. ETNA*, 18 (2003), pages 1–18.

46. Haber, E., and Ascher, U., "Preconditioned all-at-once methods for large, sparse parameter estimation problems", *Inverse Problems*, 17 (2001), pages 1847–1864.

47. Ascher, U. and Haber, E. , "Grid refinement and scaling for distributed parameter estimation problems", *Inverse Problems*, 17 (2001), pages 571–590.

48. Haber, E. and Ascher, U., "Fast finite volume simulation of 3D electromagnetic problems with highly discontinuous coefficients", *SIAM J. Scient. Comput.*, 22 (2001), pages 1943–1961.

49. Haber, E., Ascher, U., Aruliah, D., and Oldenburg, D., "Fast simulation of 3D electromagnetic problems using potentials". *J. Comp. Phys.*, 163 (2000), pages 150–171.

50. Haber, E., Ascher, U., and Oldenburg, D., "On optimization techniques for solving nonlinear inverse problems", *Inverse Problems*, 16 (2000), pages 1263–1280.

51. Spiteri, R., Pai, D. and Ascher, U., "Programming and control of robots by means of differential algebraic inequalities", *IEEE Trans. Robotics & Aut.*, 16 (2000), pages 135–145.

52. Aruliah, D., Ascher, U., Haber, E., and Oldenburg, D., "A method for the forward modeling of 3D electromagnetic quasi-static problems", *Math Models & Methods in Appl. Science*, 11 (2001), pages 1–21.

53. Ascher, U., Reich, S., "The midpoint scheme and variants for Hamiltonian systems: advantages and pitfalls", *SIAM J. Scient. Comput.*, 21 (1999), pages 1045–1065.

54. Ascher, U., and Lin, P., "Sequential Regularization Methods for simulating mechanical systems with many closed loops", *SIAM J. Scient. Comput.*, 21 (1999), pages 1244–1262.

55. Ascher, U., Ruuth, S. and Spiteri, R., "Implicit-Explicit Runge-Kutta Methods for Time-Dependent Partial Differential Equations", *Applied Numerical Mathematics*, 25 (1997), pages 151–167.

56. Ascher, U., "Stabilization of invariants of discretized differential systems", *Numerical Algorithms*, 14 (1997), pages 1–23.

57. Moulton, J.D., Morel, J. and Ascher, U., "Approximate Schur complement preconditioning of the lowest order nodal discretizations", *SIAM J. Scient. Comput.*, 19 (1998), pages 185–205.

58. Ascher, U., Pai, D. and Cloutier, B., "Forward dynamics, elimination methods, and formulation stiffness in robot simulation", *Int. J. Robotics Res.*, 16 (1997), pages 749–758.

59. Ascher, U., and Lin, P., "Sequential regularization methods for nonlinear higher index DAEs", *SIAM J. Scient. Comput.*, 18 (1997), pages 160–181.

60. Ascher, U. and Lin, P., "Sequential regularization methods for higher index DAEs with constraint singularities: I. Linear index-2 case", *SIAM J. Numer. Anal.*, 33 (1996), pages 1921–1940.

61. Ascher, U., Chin, H. Petzold, L. and Reich, S., "Stabilization of constrained mechanical systems with DAEs and invariant manifolds" , *J. Mech. Struct. Machines* 23, (1995), pages 135–159.

62. Ascher, U. and Petzold, L., "The numerical solution of delay-differential-algebraic equations of retarded and neutral type", *SIAM J. Numer. Anal.* 32 (1995), pages 1635–1657.

63. Ascher, U., Ruuth, S. and Wetton, B., "Implicit-explicit methods for time-dependent PDE's" *SIAM J. Numer. Anal.* 32 (1995), pages 797–823.

64. Sidilkover, D. and Ascher, U., "A multigrid solver for the steady state Navier-Stokes equations using the pressure-Poisson formulation", invited paper, *Comp. Appl. Math. (SBMAC)* 14 (1995), pages 21–35.

65. Ascher, U., Chin, H. and Reich, S., "Stabilization of DAEs and invariant manifolds" , *Numer. Math.* 67 (1994), pages 131–149.

66. Ascher, U. and Spiteri, R., "Collocation software for boundary value differential-algebraic equations", *SIAM J. Scient. Comput.* 15 (1994), pages 938–952.

67. Ascher, U. and Petzold, L., "Stability of computational methods for constrained dynamics systems", *SIAM J. Scient. Comput.* 14 (1993), pages 95–120.

68. Ascher, U. and Carter, P., "A multigrid method for shape from shading", *SIAM J. Numer. Anal.* 30 (1993) pages 102–115.

69. Ascher, U. and Petzold, L., "Projected Collocation for Higher-Order Higher-Index Differential-Algebraic Equations", *J. Comp. Appl. Math.* 43 (1992) pages 243–259.

70. Ascher, U., Petzold, L., "Projected Implicit Runge-Kutta methods for differential-algebraic equations", *SIAM J. Numer. Anal.* 28 (1991), pages 1097–1120.

71. Ascher, U., Markowich, P., Pietra, P. and Schmeiser, C., "A phase plane analysis of transonic solutions for the hydrodynamic semiconductor model", Mathematical Models and Methods in Applied Sciences 1 (1991), pages 347–376.

72. Ascher, U., Chan, P., "On parallel methods for boundary value ODEs", *J. Computing* 46 (1991), pages 1–17.

73. Ascher, U., "On symmetric schemes and differential-algebraic equations", *SIAM J. Scient. Stat. Comput.* 10 (1989), pages 937–949.

74. Ascher, U., "On numerical differential-algebraic problems with application to semiconductor device simulation", *SIAM J. Numer. Anal.*, 26 (1989), pages 517–538.

75. Ascher, U., Jacobs, J., "On collocation implementation for singularly perturbed two-point problems", *SIAM J. Scien. Stat. Comput.* 10 (1989), pages 533–549.

76. Ascher, U., Markowich, P. Schmeiser, C., Steinruck, H., Weiss, R., "Conditioning of the steady state semiconductor device problem", *SIAM J. Appl. Math.* 49 (1989), pages 165–185.

77. Ascher, U., Bader, G., "A note on conditioning stability and collocation matrices", *J. Appl. Math. Comput.* 31 (1989), pages 437–448.

78. Ascher, U., Mattheij, R.M.M., "General framework, stability and error analysis for numerical stiff boundary value methods", *Numerische Mathematik*, 54 (1988), pages 355–372.

79. Alon, A., Ascher, U., "Model and solution strategy for placement of rectangular blocks in the Euclidean plane", *IEEE Trans. CAD/ICAS* 7 (1988), pages 378–386.

80. Ascher, U., Osborne, M., "A note on solving nonlinear equations and the 'natural' criterion function", *J. Optimization Th. Applic.* 55 (1987), pages 147–152.

81. Bader, G., Ascher, U., "A new basis implementation for a mixed order boundary value ODE solver", *SIAM J. Scient. Stat. Comput.* 8 (1987), pages 483–500.

82. Ascher, U., Spudich, P., "A hybrid collocation method for calculating complete theoretical seismograms in vertically varying media", *Geoph. J. of Roy. Astr. Soc.* 86 (1986), pages 19–40.

83. Ascher, U., "Collocation for two-point boundary value problems revisited", *SIAM J. Numer. Anal.* 23 (1986), pages 596–609.

84. Ascher, U., Bader, G., "Stability of collocation at Gaussian points", *SIAM J. Numer. Anal.* 23 (1986), pages 412–422.

85. Ascher, U., "On some difference schemes for singular singularly-perturbed boundary value problems", *Numerische Mathematik* 46 (1985), pages 1–30.

86. Ascher, U., Weiss, R., "Collocation for singular perturbation problems II: Linear first order systems without turning points", *Math. Comp.* 43 (1984), pages 157–187.

87. Ascher, U., Weiss, R., "Collocation for singular perturbation problems III: Nonlinear problems without turning points", *SIAM J. Scient. Stat. Computing* 5 (1984), pages 811–829.

88. Spudich, P., Ascher, U., "Calculation of complete theoretical seismograms in vertically varying media using collocation methods", *Geoph. J. of Roy. Astr. Soc.* 75 (1983), pages 101–124.

89. Ascher, U., Weiss, R., "Collocation for singular perturbation problems I: First order systems with constant coefficients", *SIAM J. Numer. Anal.* 20 (1983), pages 537–557.

90. Ascher, U., Pruess, S. and Russell, R.D., "On spline basis selection for solving differential equations", *SIAM J. Numer. Anal.* 20 (1983), pages 121–142.

91. Ascher, U., Russell, R.D., "Reformulation of boundary value problems in standard form", *SIAM Review*, 23 (1981), pages 238–254.

92. Ascher, U., Christiansen, J. and Russell, R.D., "Collocation software for boundary value ODE's", package and companion paper. *ACM Trans. Math. Software*, 7 (1981), pages 209–222 and 223–229.

93. Ascher, U., Wan, F.Y.M., "Numerical solutions for maximum sustainable consumption growth with a multi-grade exhaustible resource", *SIAM J. on Scientific and Statistical Computation*, 1 (1980), pages 160–172.

94. Ascher, U., "Solving boundary value problems with a spline-collocation code", *J. Comp. Phys.* 34 (1980), pages 401–413.

95.   Ascher, U., Christiansen, J. and Russell, R.D., "A collocation solver for mixed order systems of boundary value problems", *Math. Comp.* 33, pages 659–679 (1979).

96.   Ascher, U., Rosen, J.B., "A collocation method for parabolic quasilinear problems on general domains", *J. Comp. Appl. Math.* 5 (1979), pages 183–191.

97.   Ascher, U., "Discrete least squares approximations for ordinary differential equations", *SIAM J. Numer. Anal.* 15 (1978), pages 478–496.

98.   Ascher, U., "On the invariance of the interpolation points of the discrete l_1-approximation", *J. Approx. Th.* 24 (1978), pages 83–91.

99.   Ascher, U., "Linear programming algorithms for the Chebyshev solution to a system of consistent linear equations", *SIAM J. Numer. Anal.* 14 (1977), pages 519–526.

Conference proceedings papers (refereed)

100.   Sheen, HS, Larionov, E., Ascher, U., and Pai, D., "Simulating deformable objects with large steps, contact, and friction", Proc. RSS DO-Sim: Workshop on Deformable Object Simulation in Robotics, 2021.

101.   Chen, YJ., Levin, D., Kaufman, D., Ascher, U. and Pai, D.,"EigenFit for consistent elastodynamic simulation across mesh resolution", Proc. Symp. Computer Animation, ACM (2019), 13 pages, https://doi.org/10.1145/3309486.3340248

102.   van den Doel, K., Ascher, U. and Haber, E., "The lost honour of ℓ_2-based regularization", Proc. Large Scale Inverse Problems, M. Cullen, M. Freitag, S. Kindermann and R. Scheichl (Eds.), de Gruyter (2013), pages 181–203.

103.   van den Doel, K. and Ascher, U., "Dynamic regularization, level set shape optimization and computed myography", in Control and Optimization with Differential-Algebraic Constraints, SIAM (2012), pages 323–334, L. Biegler, S. Campbell and V. Mehrmann (Eds.)

104.   van den Doel, K., Ascher, U., Curt, A., Steeves, J., and Pai, D., "Computed myography (CMG): Three dimensional reconstruction of motor functions from surface EMG data", Proc. 30th Intl IEEE EMBS Conference (2008), pages 1000–1009.

105.   Dorn, O., and Ascher, U., "Shape reconstruction in 3D electromagnetic induction tomography using a level set technique", Proc. 23rd International Review of Progress in Applied Computational Electromagnetics ACES (2007), pages 1–6.

106.   Boxerman, E., and Ascher, U., "Decomposing cloth", Proceedings Symp. Computer Animation (2004), pages 153–161.

107. Ascher, U., and Haber, E., "Computational methods for large distributed parameter estimation problems with possible discontinuities", Proceedings Symp. Inverse Problems, Design & Optimization, 2004.

108. Pai, D., Ascher, U. and Kry, P., "Forward dynamics algorithms for multibody chains and contacts", Proceedings IEEE Robotics & Automation, 2000.

109. Ascher, U., "DAEs that should not be solved", IMA Proc. vol. 118 on Dynamics of Algorithms, Springer (1999), pages 55 – 68.

110. Ascher, U., Reich, S., "On Some Difficulties in Integrating Highly Oscillatory Hamiltonian Systems", Proc. of the 2nd International Symposium on Algorithms for Macromolecular Modeling, Springer (1998) pages 281 – 296.

111. Spiteri, R., Ascher, U. and Pai, D., "Numerical solution of differential systems with algebraic inequalities arising in robot programming", Refereed Proceedings IEEE ICRA, Nagoya 1995.

112. Cloutier, B., Pai, D. and Ascher, U., "The formulation stiffness of forward dynamics algorithms and implications for robot simulation", Refereed Proceedings IEEE ICRA, Nagoya 1995.

113. Ascher, U. and Carter, P., "Multigrid solution for shape from shading", *Proc. Europ. Conf. multigrid methods*, Bonn 1990.

114. Adams, S., Ascher, U., "Using multigrid for semiconductor device simulation in 1-D", Proc. Conf. on Computational Mathematics, S. Fatunla (Ed.), Ibadan University Press, 1992.

115. Ascher, U., Markowich, P., Schmeiser, C., Steinruck, H., Weiss, R., "On the conditioning of the steady state semiconductor device problem", Proc. NUMOS I, J. Miller (Ed.), 1987. Also appeared as COMPEL 6 (1987), pages 19–23.

116. Alon, A., Ascher, U., "A placement algorithm using potential directed forces", Proc. IASTED Conf. on CAD and Applic., June, 1985.

117. Ascher, U., "Two families of symmetric difference schemes for singular perturbation problems", in Numerical Boundary Value ODEs, U. Ascher and R.D. Russell (Eds.), Birkhauser Boston, 1985, pages = 173–191.

118. Ascher, U., Christiansen, J. and Russell, R.D., "COLSYS - A collocation code for boundary value problems", Lecture notes Comp. Sc. 76, Springer Verlag (1979), pages 164–185.

Chapters in books (refereed)

119.   Ascher U., "Collocation methods", in *Encyclopedia of Applied and Computational Mathematics*, B. Engquist (Ed.) Springer 2015.

120.   Ascher U., "Global Optimization in Surface Approximation with Discontinuities", in *Advances in Optimization and Parallel Computing*, P. Pardalos (Ed.) Elsevier 1992.

121.   Ascher, U., "Hybrid methods in reflectivity calculations", contributed chapter and software package in *Seismological Algorithms*, D.J. Doornbos (Ed.) Academic Press 1988.

Software

122.   The codes from the papers (28) and (21) were adapted by CGAL – open source computational geometry algorithms library.

123.   Oldenburg, D., Haber, E., Ascher, U., and Shekhtman, R., "EH3DTD: forward modeling of time domain EM", licensed software resulting from the IMAGE Project, 2007.

124.   Oldenburg, D., Haber, E., Ascher, U., and Shekhtman, R., "EH3Dinv: frequency domain inversion", licensed software resulting from the IMAGE Project, 2007.

125.   Oldenburg, D., Haber, E., Ascher, U., and Shekhtman, R., "EH3DTDinv: time domain", licensed software resulting from Oldenburg's TIME Project, 2007.

126.   Oldenburg, D., Haber, E., Ascher, U., and Shekhtman, R., "EH3D: frequency domain forward modeling", licensed software resulting from the IMAGE Project, 2006.

127.   Ascher, U., and Spiteri, R., COLDAE – an extension of COLNEW for boundary value DAEs, available from NETLIB: 1994.

128.   Ascher, U., Christiansen, J. and Russell, R.D., "COLSYS - a software package for boundary value ODEs, algorithm 569", ACM collection of mathematical software, 1981.
A newer version COLNEW (with G. Bader) is available as part of SCILAB and from NETLIB; 1987.

arXiv papers (non-refereed)

129.   Longva, A., Loeschner, F., Fernandez, J., Larionov, E., Ascher, U., Bender, J. (2023), "Pitfalls of Projection: A study of Newton-type solvers for incremental potentials", arXiv2311.14526

   Submitted to TOG

130.   Boesen, T., Haber, E., and Ascher, U. (2022), "Neural DAEs: Constrained neural networks", arXiv2211.14302

   Submitted to SISC

131.   Wang, B., Kry, P., Deng, Y., Ascher, U., Huang, H., and Chen, B. (2019), "Neural material: Learning elastic constitutive material and damping models from sparse data", arXiv1808.04931

132.   Rothauge, K., Haber, E., and Ascher, U. (2016), "The discrete adjoint method for exponential integration", arXiv1610.02596

133.   Rothauge, K., Haber, E., and Ascher, U., (2015), "Numerical computation of the gradient and the action of the Hessian for time-dependent PDE-constrained optimization problems", arXiv1509.03801

Conference proceedings papers (non-refereed)

134.   Ascher, U., "When l1-based regularization is great, and when it's not", Proc. 11th IC-NAAM (2013), 11-13, T. Simos (Ed.), AIP.

135.   Ascher, U., and van den Doel, K., "Fast chaotic artificial time integration", in The CFL Condition 80 Years Later (2013), pages 147–155, C. de Moura & C. Kubrusly (Eds.), Birkhauser.

136.   van den Doel, K. and Ascher, U., "Adaptive and stochastic algorithms for piecewise constant EIT and DC resistivity problems with many measurements", Proceedings Waves 2011.

137.   Ascher, U., and Haber, E., "Computational methods for large distributed parameter estimation problems in 3D", Proceedings Symp. Modeling, Simulation and Optimization of Complex Processes (2004), pages 15–36.

138.   Haber, E., Ascher, U. and Oldenburg, D., "Inversion of 3D time domain electromagnetic data using an all-at-once approach", (4 pages) SEG, Salt Lake, 2002.

139.   Haber, E., Ascher, U. and Oldenburg, D., "3D forward modeling of time domain electromagnetic data", (4 pages) SEG, Salt Lake, 2002.

140.   Haber, E., Ascher, U., Oldenburg, D., Shekhtman, R. and Chen, J., "3D frequency domain CSEM inversion using unconstrained optimization", (4 pages) SEG, Salt Lake, 2002.

141.   Haber, E., Oldenburg, D. and Ascher, U., "Modeling 3D Maxwell's equations with non-continuous coefficients", (4 pages) SEG, Calgary, 2000.

142.   Haber, E., Oldenburg, D. and Ascher, U., "Inversion of 3D Electromagnetic Data - A constrained optimization approach", (4 pages) SEG, Calgary, 2000.

143.   Haber, E., Ascher, U. and Oldenburg, D., "Solution of the 3D electromagnetic inverse problem", (4 pages), 3rd Int. Symp. on 3D Electromagnetics, Salt Lake, 1999.

144.   Moulton, J.D., Morel, J. and Ascher, U., "Approximate Schur complement preconditioning of the lowest order nodal discretizations", Proc. Copper Mtn Conference on Iterative methods, 1996 (extended 7-page abstract).

145.   Ascher, U. and Lin, P., "Sequential Regularization Methods for Nonlinear Higher Index DAEs", Proceedings ICIAM 95, "Numerical Analysis, Scientific Computing, Computer Science", ZAMM, Akademie Verlag, Berlin 1996.

146.   Ascher, U., Markowich, P., Pietra, P. and Schmeiser, C., "A phase plane analysis of hydrodynamic models for collisionless plasmas", Proc. 9th France-USSR-Italy Symp. on Computational Math and Applic. (1991).

147.   Ascher, U. and Osborne, M., "Exploiting parallelism in the solution of overdetermined multi-point boundary value problems", Proc. CTAC, Melbourne (1991).

148.   Ascher, U. and Petzold, L., "Numerical methods for boundary value problems in differential-algebraic equations", in *Recent Developments in Numerical Methods and Software for ODEs/DAEs/PDEs*, G. Byrne and W. Schiesser (Eds.), World Scientific 1992, 125-136.

149.   Ascher, U. and Petzold, L., "Projected implicit Runge-Kutta methods for the solution of index-two differential-algebraic systems", *Proc. IEEE Conf. Decision and Control*, Honolulu, 1990.

150.   Ascher, U., "Differential-algebraic problems and semiconductor device simulation", Proc. Oberwolfach Conference, Birkhauser, 1989.

151.   Ascher, U., Spudich, P., "A numerical method for calculating complete theoretical seismograms in vertically varying media", Proc. Conf. on Large Scale Computing, P. Deuflhard and B. Engquist (Eds.), Birkhauser, 1987.

152.   Wan, F.Y.M., Ascher, U., "Horizontal and flat points in shallow cap dimpling", (1980), Proc. BAIL I Conference, Dublin.