

CURRICULUM VITAE

Michael J. Holst

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APPOINTMENTS

Chancellor's Associates Endowed Chair VIII	University of California, San Diego	2012–
Professor of Physics	University of California, San Diego	2009–
Visiting Associate in Physics	California Institute of Technology	2002–2009
Professor of Mathematics	University of California, San Diego	2003–
Associate Professor of Mathematics	University of California, San Diego	2000–2003
Assistant Professor of Mathematics	University of California, San Diego	1998–2000
Assistant Professor of Mathematics	University of California, Irvine	1997–1998
Von Karman Instructor of Applied Mathematics	California Institute of Technology	1995–1997

EDUCATION

California Institute of Technology	Applied Mathematics	Prize Research Fellow	1993–1995
University of Illinois	Numerical Analysis	Ph.D.	1993
University of Illinois	Numerical Analysis	M.S.	1990
Colorado State University	Mathematics	B.S.	1987

RESEARCH AREAS

General: Numerical Analysis, Applied Analysis, PDE, Mathematical Physics.

Specific: Adaptive Finite Element Methods, Geometric PDE, Biophysics, General Relativity.

STUDENTS

Doctoral students (7 completed, 7 current, 5 advanced to candidacy): B. Aksoylu (UCSD/Math, 2001; ETU); N. Baker (UCSD/Chem, 2001; PNNL); K. Tai (UCSD/Chem, 2002; Oxford U.); K. Scully (UCSD/Math, 2003; Aero. Corp.); J. Fenwick (UCSD/Math, 2005; Far-Tech Corp.); R. Szykowski (UCSD/Math, 2008; Cal Poly Pomona); S. Pollock (UCSD/Math-CSME, 2012; UCSD). Current: M. Ebrahimi (UCSD/Math-CSME, proj: 2012); C. Tiee (UCSD/Math, proj: 2012); J. Serencsa (UCSD/Math-CSME, proj: 2012); C. Meier (UCSD/Math, proj: 2012); H. Hu (UCSD/Phys, proj: 2013); S. Cheng (UCSD/Math-CSME, proj: 2014); A. Mihalik (UCSD/Math-CSME, proj: 2014).

Postdoctoral scholars (19 completed, 2 current): F. Wang (2000-2001; Math Zoom Acad.); S. Bond (2000-2003; SNL); H. MacMillan (2001-2003; Clemson U.); J. Suen (2002-2004; UCLA); J. Erway (2006-2007; Wake Forest); O. Sarbach (2005-2006; U. Michoacana); L. Chen (2005-2006; UC Irvine); A. Malqvist (2006-2007; Uppsala). G. Nagy (2004-2008; Michigan State U.); D. Reynolds (2005-2008; SMU); B. Lu (2006-2008; Chin. Acad. Sci.); Y. Cheng (2006-2009; PNNL); Z. Yu (2006-2008; U. of Wisconsin-Milwaukee); Y. Zhou (2006-2008; Colorado State U.); G. Tsogtgerel (2006-2009; McGill U.); E. Lunasin (2006-2010; U. Michigan); R. Szykowski (2008-2011; Cal Poly Pomona); Y. Zhu (2008-2012; Idaho State U.); A. Stern (2009-2012; Washington U.). Current: P. Kekenus-Huskey (2010-; Caltech); A. Gillette (2011-; UT Austin).

Undergraduate research/thesis students (13 completed, 1 current): J. Kleint (2002; UCSD, CalIT2 Summer Program); J. Noble (2003; UCSD, Math Honors Thesis); R. Page (2006; UC Berkeley, UC STARS/UC LEADS Summer Program); P. Sanan (2006; UCSD); B. Nguyen (2006; UCSD, CalIT2 Summer Program); J. Kommemi (2006-2007; UCSD, Enrichment/CalIT2 Summer Program, Math Honors Thesis, Dean's Award); E. Eldridge (2007-2008; UCSD, CTBP Academic Year and Summer Internships); J. Webster (2007-2008; UCSD, Math Honors Thesis); C. Wood (2008; UCSD, CAMPS Summer Internship); K. Farrell (2008-2009; UCSD, Math Honors Thesis, Dean's Award, Silagi Award); J. Lee (2009; UC Santa Cruz); H. Miles-Leighton (2009-2010; UCSD); N. Miller (2008-2011; UCSD).

HONORS AND AWARDS

Chancellor's Associates Endowed Chair VIII (2012–)
Distinguished CSU Alumnus Award (2009)
Outstanding UCSD Faculty Mentor Award (2005–2006)
NSF CAREER Award (1999–2004)
Hellman Fellow (1999)
COR-UCI Award (1998)
Caltech von Karman Instructorship (1995–1997)
Caltech Prize Research Fellow (1993–1995)
Myron-Brown-Ludlow Award (1987)
President's Award (1987)

UCSD TEACHING CAREER

Average Instructor Rating for all rated UCSD courses: 98.3% (27 rated courses; 1999-2011)

Specific Instructor Ratings for all courses taught at UCSD: (<http://www.cape.ucsd.edu/>)

Math 273B (Winter 2011) MATH Recommended Instructor Rating: 100%
Math 270B (Winter 2011) MATH Recommended Instructor Rating: 93%
Math 170C (Spring 2010) CAPE Recommended Instructor Rating: 100%
Math 273C (Spring 2010) MATH Recommended Instructor Rating: 100%
Math 273B (Winter 2010) MATH Recommended Instructor Rating: 100%
Math 259C (Spring 2009) MATH Recommended Instructor Rating: 100%
Math 241B (Winter 2009) MATH Recommended Instructor Rating: 100%
Math 273C (Spring 2008) MATH Recommended Instructor Rating: 100%
Math 273B (Winter 2008) MATH Recommended Instructor Rating: 100%
Math 273A (Fall 2007) MATH Recommended Instructor Rating: 100%
Math 237B (Spring 2007) MATH Recommended Instructor Rating: 100%
Math 237A (Winter 2007) MATH Recommended Instructor Rating: 100%
Math 273C (Spring 2006) MATH Recommended Instructor Rating: 100%
Math 273B (Winter 2006) MATH Recommended Instructor Rating: 100%
Math 171B (Spring 2005) inCAPEable (less than 15 students)
Math 270C (Spring 2005) MATH Recommended Instructor Rating: 100%
Math 20D (Fall 2004) CAPE Recommended Instructor Rating: 86%
Math 171B (Spring 2003) inCAPEable (less than 15 students)
Math 171B (Spring 2002) CAPE Recommended Instructor Rating: 100%
Math 273C (Spring 2002) MATH Recommended Instructor Rating: 100%
Math 273B (Winter 2002) MATH Recommended Instructor Rating: 100%
Math 273A (Fall 2001) Not Rated (MATH/Instructor missed class)
Math 174 (Fall 2001) CAPE Recommended Instructor Rating: 100%
Math 170C (Spring 2001) CAPE Recommended Instructor Rating: 100%
Math 270C (Spring 2001) Not Rated (MATH/Instructor missed class)
Math 21D (Fall 2000) CAPE Recommended Instructor Rating: 89%
Math 174 (Fall 2000) inCAPEable (CAPE missed the class)
Math 171B (Spring 2000) inCAPEable (CAPE missed the class)
Math 273C (Spring 2000) MATH Recommended Instructor Rating: 100%
Math 273B (Winter 2000) MATH Recommended Instructor Rating: 100%
Math 273A (Fall 1999) MATH Recommended Instructor Rating: 100%
Math 171B (Spring 1999) inCAPEable (less than 15 students)
Math 170C (Spring 1999) CAPE Recommended Instructor Rating: 93%
Math 20D (Winter 1999) CAPE Recommended Instructor Rating: 94%

UCSD SERVICE ACTIVITIES

- Director, Mathematical & Computational Physics Research Group, 1998–.
(MCP; <http://ccom.ucsd.edu/~mholst/group/>)
- Project Lead, The Finite Element ToolKit, 1998–.
(FETK; <http://www.FETK.org/>)
- Co-Director and Founding Faculty, Center for Computational Mathematics, 2008–.
(CCoM; <http://ccom.ucsd.edu/>)
- Co-Director and Founding Faculty, Program in Computational Sci., Math., & Engr., 2006–.
(CSME; <http://csme.ucsd.edu/>)
- Project Lead, NSF MRI/SCREMS-funded CCoM/CSME Computing Facility, 2009–.
(CSME; <http://ccom.ucsd.edu/research/resources.php>)
- Core and Founding Faculty, BioCircuits Institute, 2009–.
(BCI; <http://biocircuits.ucsd.edu/>)
- Core Investigator, National Biomedical Computation Resource, 2004–.
(NBCR; <http://nbcrc.ucsd.edu/>)
- Senior Scientist and Founding Faculty, Center for Theoretical Biological Physics, 2002–.
(CTBP; <http://ctbp.ucsd.edu/>)
- Executive Committee, San Diego Supercomputer Center, 2006–.
(SDSC; <http://www.sdsc.edu/>)
- Steering Committee, Triton Affiliations and Partners Program, 2009–.
(TAPP; <http://tritonresource.sdsc.edu/>)
- Steering Committee, La Jolla Interfaces in Science, 2002–.
(LJIS; <http://ljis.ucsd.edu/>)
- Participating Faculty, Interfaces Ph.D. Program, 2005–.
(<http://interfaces.ucsd.edu/>)
- Participating Faculty, Bioinformatics Ph.D. Program, 2002–.
(<http://bioinformatics.ucsd.edu/>)
- Co-Organizer, CCoM Seminar, 1998–.
(http://ccom.ucsd.edu/seminar_ccom.html)
- Organizer, CSME Seminar, 2006–.
(http://ccom.ucsd.edu/seminar_csme.html)
- Member, Institute for Nonlinear Science (INLS) Sunset Review Committee, 2005–2006, 2006–2007.
- Member, Review Committee for the Dean of Physical Sciences, 2009–2010.
- Member, Executive Committee for Electronic Research Administration (eRAP), 2010–2011.
- Chairman, Warren College Executive Committee, 2004–2005, 2005–2006.
- Committee on Academic Information Technology (CAIT), 2003–2004, 2004–2005, 2005–2006.
- Campus-wide promotion ad-hoc committees, 2004–.
- Mathematics Department Council, 2004–2005, 2005–2006, 2006–2007, 2007–2008.
- Mathematics Department Hiring Committee, 2004–2005, 2008–2009.
- Mathematics Department Area Course Coordinator, 2007–2008, 2008–2009, 2009–2010, 2010–2011.
- Mathematics Department Qual Reform Committee, 2008–2009, 2009–2010.
- Mathematics Department VIGRE Committee, 2002–2003, 2003–2004.
- Mathematics Department Graduate Admissions Committee, 2003–2004, 2004–2005, 2005–2006.
- Mathematics Department Graduate Affairs/Advising, 2003–2004, 2004–2005, 2005–2006, 2008–2009.
- Mathematics Department Qual Appeals Committee, 2003–2004, 2004–2005, 2009–2010, 2010–2011.
- Mathematics Department Computer Equipment Committee Chair, 2002–2003, 2003–2004.
- Mathematics Department Colloquium Chair, 2005–2006, 2006–2007.
- Mathematics Department Undergraduate Advisor, 2003–2004, 2004–2005, 2005–2006.
- Advisor, Mathematics Honors Program, 2001–.
- Advisor, CTBP Undergraduate Internship Program, 2007–2008.

Advisor, Cal(IT)² Undergraduate Summer Research Program, 2002–2003, 2005–2006, 2006–2007.
Advisor, UC STARS, UC LEADS, CAMPS Undergraduate Summer Research Program, 2005–2009.
Lecturer, Freshman Seminar Program, 2003–2004, 2004–2005, 2005–2006.
Member of numerous PhD Committees for doctoral students at UCSD:
mathematics, physics, chemistry, biology, and engineering departments, 1998–.
Member of external PhD Committees:
J. Hameed (UIUC Computer Science, 2011); W. Newton (CSU Mathematics, 2011).

EXTERNAL SERVICE ACTIVITIES

Reviewer:

Numerische Mathematik; SIAM Journal on Numerical Analysis; SIAM Review; SIAM Journal on Scientific Computing; Communications in the Mathematical Sciences; Communications in Computational Physics; Journal of Computational Physics; Journal of Computational Chemistry; Computer Methods in Applied Mechanics and Engineering; SIAM, AMS, and Springer Books, Films, and other technical material; NSF, DOE, DOD, and NIH Funding Proposals (panels and individual reviews).

Editorial:

DD20 Proceedings Volume (2011), SIAM CS&E Book Series (2009–),
Numerische Mathematik (2008–), SIAM J. Numer. Anal. (2004–2008),
SIAM Rev. (2003–2006), Comm. in Math. Sci. (2003–2006)

University of Chicago Review Committee, ANL Math and CS Division (MCS).

Steering Committee, So. Cal. Applied Mathematics Symposium (<http://socams.ucsd.edu/>).

Caltech Program on Numerical GR Organizing Committee: Evolution Equation Formulation
(Fall 2002, <http://www.tapir.caltech.edu/GWSourceSimulation/>).

Caltech Program on Numerical GR Organizing Committee: Initial Data Problem
(Winter–Spring 2003, <http://www.tapir.caltech.edu/GWSourceSimulation/>).

University of Miami Waves 2004 Session Organizer: Numerical GR
(Winter 2004, <http://www.math.miami.edu/anno/waves/>).

IPAM Workshop Organizing Committee: Relativistic Astrophysics
(Spring 2005, <http://www.ipam.ucla.edu/programs/pcaws3/>).

Beijing Workshop Organizing Committee: Adaptive and Multilevel Methods for PDE
(August 2006, <http://ccse.pku.edu.cn/06summerschool/conference.html>)

MSRI Workshop Organizing Committee: Methods for Geometric Evolution Equations (Spring 2007,
http://www.msri.org/calendar/workshops/WorkshopInfo/417/show_workshop).

IMA Year-long Program Organizing Committee: Mathematics and Chemistry
(Fall 2008, Winter–Spring 2009, <http://www.ima.umn.edu/2008-2009/>).

IMA Workshop, Co-Organizer: Solvation
(Fall 2008, <http://www.ima.umn.edu/2008-2009/W12.8-12.08/index.html>).

REB60, Primary Organizer (with P. Gill)
(Fall 2009, <http://ccom.ucsd.edu/~reb60/>).

26th Pacific Coast Gravity Mtg (PCGM26), Primary Organizer (with M. Leok, D. Meyer, J. Rabin)
(Spring 2010, <http://ccom.ucsd.edu/~pcgm26/>).

6th Annual Structured Integrators Workshop (SI2010), Co-Organizer (with M. Leok)
(Spring 2010, <http://ccom.ucsd.edu/~si2010/>).

20th International Conference on Domain Decomposition (DD20), Co-Organizer (with R. Bank)
(Winter 2011, <http://ccom.ucsd.edu/~dd20/>).

SIAM CS&E Conference Minisymposium, Primary Organizer (with J. Hameed):
Numerical Methods for Implicit Models in Biomolecular Systems
(Spring 2011, <http://www.siam.org/meetings/cse11/>).

SIAM Analysis of PDE Conference Minisymposium, Primary Organizer (with A. Demlow,
R. Szypowski): Exploiting Geometry in the Development of Numerical Methods for
Partial Differential Equations (Fall 2011, <http://www.siam.org/meetings/pd11/>).

MNGR/FRG Seminar Series, Primary Organizer (with D. Estep, J. Isenberg, M. Leok, J. Sterbenz):
 Mathematical and Numerical General Relativity Seminar Series and Reading Course
 (Fall 2011, <http://ccom.ucsd.edu/~mholst/research/mngr/index.html>).
 SCAPDE Conference, Co-Organizer (with J. Sterbenz, J. Isenberg, P. Ebenfelt):
 Southern California Analysis and Partial Differential Equations Conference
 (Spring 2012, <http://math.ucsd.edu/~scapde/>).

CONTRACTS AND GRANTS (Current: G19–G30; 25M current, 4.3M as PI/Co-PI)

- G30. AFOSR AWARD FA9550-12-1-0046: APPLICATIONS OF QUANTUM COMPUTING IN AEROSPACE SCIENCE AND ENGINEERING, (*Co-PI; with D. Meyer (PI), T. Bewley, Y. Bazilevs*), \$3,750,000, 03/15/12–03/14/17.
- G29. DOE AWARD: SCALABLE ADAPTIVE MULTILEVEL SOLVERS FOR MULTIPHYSICS PROBLEMS, (*PI; with R. Bank*), \$107,804, 09/01/11–08/31/14.
- G28. NSF DMS/FRG AWARD 1065972: ERROR QUANTIFICATION AND CONTROL FOR GRAVITATIONAL WAVEFORM SIMULATION, (*PI; with D. Estep, M. Leok, L. Lindblom*), \$454,906, 08/01/11–07/31/14.
- G27. UCSD 50TH ANNIVERSARY EVENT AWARD, (*PI; with R. Bank (Co-PI)*), \$2,500, 08/01/09–07/31/11.
- G26. DOE APPLIED MATHEMATICS DIVISION CONFERENCE AWARD: TWENTIETH INTERNATIONAL CONFERENCE ON DOMAIN DECOMPOSITION METHODS, (*PI; with R. Bank (Co-PI)*), \$25,000, 08/01/09–07/31/11.
- G25. NSF DMS/CM AWARD 1035227: TWENTIETH INTERNATIONAL CONFERENCE ON DOMAIN DECOMPOSITION METHODS, (*Co-PI; with R. Bank (PI)*), \$25,000, 08/01/09–07/31/11.
- G24. NSF DMS/CM AWARD 0915220: OPTIMIZATION, DIFFERENTIAL EQUATIONS AND APPLICATIONS, (*Co-PI; with P. Gill (PI) and R. Bank*), \$290,000, 08/01/09–07/31/11.
- G23. ONR/DTRA-09-1-0036: A POSTERIORI ERROR ANALYSIS AND UNCERTAINTY QUANTIFICATION FOR ADAPTIVE MULTISCALE OPERATOR DECOMPOSITION METHODS FOR MULTIPHYSICS PROBLEMS, (*Co-PI; with D. Estep (PI)*), \$578,660, 06/04/09–05/04/12.
- G22. UC LAB RESEARCH PROGRAM AWARD 0118418: ADAPTIVE RADIOTHERAPY BASED ON HIGH PERFORMANCE COMPUTING, (*Co-PI; with S. Jiang (PI), A. Majumdar, D.J. Choi*), \$1,499,631, 05/01/09–04/30/12.
- G21. NIH P41 P41RR008605-16: NATIONAL BIOMEDICAL COMPUTATION RESOURCE (NBCR), (*Senior Personnel; with P. Arzberger (PI)*), \$10,305,420, 05/01/09–04/30/14.
- G20. NSF PHY/PFC 0822283: PHYSICS FRONTIER CENTER: CENTER FOR THEORETICAL BIOLOGICAL PHYSICS (CTBP), (*Senior Personnel; with J.N. Onuchic (PI)*), \$11,000,000, 09/01/08–08/31/13.
- G19. NSF DMS/MRI 0821816: MRI: ACQUISITION OF A PARALLEL COMPUTING AND VISUALIZATION FACILITY TO ENABLE INTEGRATED RESEARCH AND TRAINING IN MODERN COMPUTATIONAL SCIENCE, MATHEMATICS, AND ENGINEERING, (*PI; with S. Baden, J. Remmel, J. Weare, R. Bank*), \$502,091, 09/01/08–08/31/11.
- G18. NSF DMS/CM 0715146: COLLABORATIVE RESEARCH: FINITE ELEMENT METHODS FOR DISCRETIZING GEOMETRIC PDES WITH NONLINEAR CONSTRAINTS AND GAUGE FREEDOM, (*PI; with D. Estep, G. Nagy*), \$180,000, 09/01/07–08/31/10.
- G17. NSF DMS/SCREMS 0619173, (*PI; with R. Bank, L.-T. Cheng, P. Gill, B. Li*), \$130,000, 09/01/06–08/31/07.
- G16. DOE DE-FG02-05ER25707, (*PI; with B. Li, J. Weare*), \$797,032, 08/15/05–08/14/08.
- G15. NSF DMS/CM 0511766, (*Co-PI; with R. Bank (PI), L.-T. Cheng, P. Gill*), \$505,108, 09/01/05–08/31/08.
- G14. NSF DMS/CM 0411723, (*PI; single investigator*), \$239,000, 09/01/04–08/31/07.
- G13. DOE DE-FG02-04ER25620, (*Co-PI; with D. Estep (PI), S. Tavener*), \$940,972, 09/01/04–08/31/07.
- G12. NIH P41 RR08605: NATIONAL BIOMEDICAL COMPUTATION RESOURCE (NBCR), (*Senior Personnel; with P. Arzberger (PI)*), \$8,998,955, 05/01/04–04/30/09.
- G11. NSF PHY/PFC/ITR 0225630: CENTER FOR THEORETICAL BIOLOGICAL PHYSICS (CTBP), (*Co-PI; with H. Levine (PI), J.N. Onuchic, K.K. Baldridge, W.-J. Rappel*), \$5,000,000, 10/01/02–09/30/07.

- G10. NSF DMS/CM 0208449, (Co-PI; with P. Gill (PI), R. Bank, L.-T. Cheng), \$431,000, 07/01/02–06/30/05.
- G9. NSF DMS/CM CAREER AWARD 9875856, (PI; single investigator), \$200,000, 08/01/99–07/31/04.
- G8. DOE SCI-DAC 21-6993, (Co-PI; with J. Mitchell (PI), L. Ten Eyck, A. McCammon, V. Roberts, B. Rosen), \$1,044,240, 09/29/01–09/28/04.
- G7. NSF DMS/SCREMS 0112413, (PI; with R. Bank, L.-T. Cheng, P. Gill), \$45,000, 08/01/01–07/31/02.
- G6. NSF DMS/CM 9973276, (Co-PI; with R. Bank (PI), P. Gill), \$245,000, 07/01/99–06/30/02.
- G5. DASSAULT AVIATION, (Co-PI; with R. Bank (PI)), \$20,000, 07/01/99–06/30/00.
- G4. UCSD HELLMAN FELLOWSHIP, (PI; single investigator), \$27,300, 07/01/99–06/30/00.
- G3. UCI COR AWARD, (PI; single investigator), \$3,500, 07/01/97–6/30/98.
- G2. CALTECH VON KARMAN INSTRUCTORSHIP, (PI; single investigator), 1995–1997.
- G1. CALTECH PRIZE RESEARCH FELLOWSHIP, (PI; single investigator), 1993–1995.

REFEREED ARTICLES AND BOOKS

- A86. M. HOLST, S. POLLOCK, AND Y. ZHU, *Convergence of goal-oriented adaptive finite element methods for semilinear problems*. Submitted for publication. Available as [arXiv:1203.1381 \[math.NA\]](#).
- A85. M. HOLST, R. SZYPOWSKI, AND Y. ZHU, *Two-grid methods for semilinear interface problems*. Submitted for publication. Available as [arXiv:1203.0339 \[math.NA\]](#).
- A84. A. GILLETTE AND M. HOLST, *Finite element exterior calculus for evolution problems*. Submitted for publication. Available as [arXiv:1202.1573 \[math.NA\]](#).
- A83. M. HOLST AND C. MEIER, *Generalized solutions to semilinear elliptic PDE with applications to the Lichnerowicz equation*. Submitted for publication. Available as [arXiv:1112.0351 \[math.NA\]](#).
- A82. M. HOLST AND S. POLLOCK, *Convergence and optimality of goal-oriented adaptive finite element methods for nonsymmetric problems*. Submitted for publication. Available as [arXiv:1108.3660 \[math.NA\]](#).
- A81. R. BANK, M. HOLST, R. SZYPOWSKI, AND Y. ZHU, *Finite element error estimates for critical exponent semilinear problems without angle conditions*. Submitted for publication. Available as [arXiv:1108.3661 \[math.NA\]](#).
- A80. J. ERWAY AND M. HOLST, *Barrier methods for critical exponent problems in geometric analysis and mathematical physics*. Submitted for publication. Available as [arXiv:1107.0360 \[math.NA\]](#).
- A79. B. AYUSO DE DIOS, M. HOLST, Y. ZHU, AND L. ZIKATANOV, *Multilevel preconditioners for discontinuous Galerkin approximations of elliptic problems with jump coefficients*. Submitted for publication. Available as [arXiv:1107.2160 \[math.NA\]](#).
- A78. M. HOLST, R. SZYPOWSKI, AND Y. ZHU, *Adaptive finite element methods with inexact solvers for the nonlinear Poisson-Boltzmann equation*. Submitted for publication. Available as [arXiv:1107.2143 \[math.NA\]](#).
- A77. M. HOLST AND G. TSOGTGEREL, *Rough solutions of the Lichnerowicz equation on compact manifolds with boundary*. Submitted for publication. Available as [arXiv:0000.0000 \[gr-qc\]](#).
- A76. M. HOLST, G. TSOGTGEREL, AND Y. ZHU, *Local convergence of adaptive methods for nonlinear partial differential equations*. Submitted for publication. Available as [arXiv:1001.1382 \[math.NA\]](#).
- A75. L. CHEN, M. HOLST, J. XU, AND Y. ZHU, *Local multilevel preconditioners for elliptic equations with jump coefficients on bisection grids*. Submitted for publication. Available as [arXiv:1006.3277 \[math.NA\]](#).
- A74. B. AYUSO DE DIOS, M. HOLST, Y. ZHU, AND L. ZIKATANOV, *Multilevel preconditioners for discontinuous Galerkin approximations of elliptic problems with jump coefficients*. Submitted for publication. Available as [arXiv:1012.1287 \[math.NA\]](#).
- A73. Z. GAO, Z. YU, AND M. HOLST, *Quality tetrahedral mesh smoothing via boundary-optimized Delaunay triangulation*. Submitted to Computer Aided Geometric Design.
- A72. M. BALASUBRAMANIAN, D. KRIEGMAN, C. BOWD, M. HOLST, R. WINREB, P. SAMPLE, AND L. ZANGWILL, *Localized glaucomatous change detection within the proper orthogonal decomposition framework*. Accepted for publication in Investigative Ophthalmology and Visual Science.

- A71. J. HAKE, A. EDWARDS, Z. YU, P. KEKENES-HUSKEY, A. MICHAILOVA, A. MCCAMMON, M. HOLST, M. HOSHIJIMA, AND A. MCCULLOCH, *Modeling cardiac calcium sparks in a three-dimensional reconstruction of a calcium release unit*. Accepted for publication in J. Physiology.
- A70. M. HOLST AND V. KUNGURTSEV, *Numerical bifurcation analysis of conformal formulations of the Einstein constraints*. Accepted for publication in Phys. Rev. D. Available as [arXiv:1107.0262 \[math.NA\]](https://arxiv.org/abs/1107.0262).
- A69. M. HOLST AND A. STERN, *Semilinear mixed problems on Hilbert complexes and their numerical approximation*, Found. Comput. Math., 12 (2012), pp. 363–387. Available as [arXiv:1010.6127 \[math.NA\]](https://arxiv.org/abs/1010.6127).
- A68. M. HOLST AND A. STERN, *Geometric variational crimes: Hilbert complexes, finite element exterior calculus, and problems on hypersurfaces*, Found. Comput. Math., 12 (2012), pp. 263–293. Available as [arXiv:1005.4455 \[math.NA\]](https://arxiv.org/abs/1005.4455).
- A67. B. AKSOYLU, S. BOND, E. CYR, AND M. HOLST, *Adaptive solution of the Poisson-Boltzmann equation using goal-oriented error indicators*. Accepted for publication in J. Sci. Comput. Available as [arXiv:1109.4092 \[math.NA\]](https://arxiv.org/abs/1109.4092).
- A66. M. EBRAHIMI, M. HOLST, AND E. LUNASIN, *The Navier-Stokes-Voigt model for image inpainting*. Accepted for publication in IMA J. Appl. Math. Available as [arXiv:0901.4548 \[math.AP\]](https://arxiv.org/abs/0901.4548).
- A65. Y. CHENG, M. HOLST, J. MCCAMMON, AND A. MICHAILOVA, *Multiscale continuum modeling and simulation of biological processes: From molecular electro-diffusion to sub-cellular signaling transduction*. Accepted for publication in Comput. Sci. Disc.
- A64. I. STAKGOLD AND M. HOLST, *Boundary Value Problems: Theory and Applications*, John Wiley & Sons, Inc., New York, NY, 496 pages, October 2012. The preface and table of contents of the book are available at: <http://ccom.ucsd.edu/~mholst/pubs/dist/StHo2011b-preview.pdf>.
- A63. D. ESTEP, M. HOLST, AND A. MALQVIST, *Nonparametric density estimation for randomly perturbed elliptic problems III: Convergence, complexity, and generalizations*. Accepted for publication in J. Appl. Math. Comput.
- A62. Z. YU, G. YAO, M. HOSHIJIMA, A. MICHAILOVA, AND M. HOLST, *Multi-scale modeling of calcium dynamics in ventricular myocytes with realistic transverse tubules*. Accepted for publication in IEEE Transactions on Biomedical Engineering.
- A61. M. HOLST, J. OVALL, AND R. SZYPOWSKI, *An efficient, reliable and robust error estimator for elliptic problems in \mathbb{R}^3* , Appl. Numer. Math., 61 (2011), pp. 675–695.
- A60. I. STAKGOLD AND M. HOLST, *Green's Functions and Boundary Value Problems*, John Wiley & Sons, Inc., New York, NY, third ed., 888 pages, February 2011. The preface and table of contents of the book are available at: <http://ccom.ucsd.edu/~mholst/pubs/dist/StHo2011a-preview.pdf>.
- A59. L. CHEN AND M. HOLST, *Efficient mesh optimization schemes based on optimal Delaunay triangulations*, Comp. Meth. in Appl. Mech. Engr., 200 (2011), pp. 967–984.
- A58. M. HOLST, M. LARSON, A. MALQVIST, AND R. SODERLUND, *Convergence analysis of finite element approximations of the Joule heating problem in three spatial dimensions*, BIT, 50 (2010), pp. 781–795.
- A57. Y. CHENG, Z. YU, M. HOSHIJIMA, M. HOLST, A. MCCULLOCH, J. MCCAMMON, AND A. MICHAILOVA, *Numerical analysis of Ca^{2+} signaling in rat ventricular myocytes with realistic transverse-axial tubular geometry and inhibited sarcoplasmic reticulum*, PLoS Computational Biology, 6 (2010), pp. e1000972:1–16.
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BOOK PROJECTS AND LECTURE NOTES

- N12. M. HOLST, *Mathematical and Computational Physics*, 2012. (Monograph in Preparation).
- N11. D. ESTEP AND M. HOLST, *Applied Functional Analysis and Adjoint Techniques for Differential Equations*, 2012. (Graduate Text in Preparation).
- N10. I. STAKGOLD AND M. HOLST, *Boundary Value Problems: Theory and Applications*, John Wiley & Sons, Inc., New York, NY, 496 pages, October 2012. The preface and table of contents of the book are available at: <http://ccom.ucsd.edu/~mholst/pubs/dist/StHo2011b-preview.pdf>.
- N9. I. STAKGOLD AND M. HOLST, *Green's Functions and Boundary Value Problems*, John Wiley & Sons, Inc., New York, NY, third ed., 888 pages, February 2011. The preface and table of contents of the book are available at: <http://ccom.ucsd.edu/~mholst/pubs/dist/StHo2011a-preview.pdf>.
- N8. M. HOLST, *Mathematical and Numerical General Relativity*, 2009. Lecture notes.
- N7. M. HOLST, *Computational Multiscale Modeling: Adaptive Methods with Applications in Biophysics*, 2008. Lecture notes (from the 2008 CTBP and NBCR Summer Workshops at UCSD).
- N6. M. HOLST, *Nonlinear Functional Analysis: Applications in PDE and Numerical Analysis*, 2007. Lecture notes.
- N5. M. HOLST, *Differential Geometry: Applications in Shell Theory and General Relativity*, 2007. Lecture notes.
- N4. M. HOLST, *Approximation Theory: Nonlinear Approximation and Numerical Analysis*, 2005. Lecture notes.
- N3. M. HOLST, *Linear Functional Analysis: Applications in PDE and Numerical Analysis*, 2000. Lecture notes.
- N2. M. HOLST, *Matrix Theory: Linear Operators on Finite-Dimensional Vector Spaces*, 1997. Lecture notes.
- N1. M. HOLST, *Elliptic Equations: Theory and Finite Element Approximation*, 1995. Lecture notes.

ARTICLES IN THE POPULAR PRESS

- P3. M. HOLST AND T. HOU, *Obituary: Herbert B. Keller*, SIAM News, 41 (July 2008), pp. 2–5.
- P2. M. HOLST, *Kansas hosts macromolecular modeling workshop*, SIAM News, 28 (March 1995), pp. 11–11.
- P1. M. HOLST, *Symposium honors Herbert B. Keller*, SIAM News, 28 (December 1995), pp. 3–3.

LECTURES

- T154. Plenary Lecture, CSU Research Colloquium, Physics at CSU: Neutrinos to Nano Science, Colorado State University, Fort Collins, CO, March 2012.
- T153. Invited Lecture, JTO Faculty Fellowship Lecture (2 of 2), Institute for Computational Engineering and Science (ICES), University of Texas, Austin, TX, January 2012.
- T152. Invited Lecture, JTO Faculty Fellowship Lecture (1 of 2), Institute for Computational Engineering and Science (ICES), University of Texas, Austin, TX, November 2011.
- T151. Invited Lecture, Workshop on Geometric Partial Differential Equations: Theory, Numerics and Applications, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, November 2011.
- T150. Invited Lecture, Schnelle Löser für partielle Differentialgleichungen, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, May 2011.
- T149. Plenary Lecture, Workshop on Advances and Challenges in Computational General Relativity, Brown University, Providence, RI, May 2011.
- T148. Seminar, Pacific Northwest National Laboratory, Richland, WA, May 2011.
- T147. Colloquium, Department of Applied Mathematics, University of Washington, Seattle, WA, May 2011.
- T146. Colloquium, Department of Mathematics, The Penn State University, State College, PA, April 2011.
- T145. Colloquium, Department of Mathematics, University of Wisconsin, Madison, WI, April 2011.
- T144. Invited ICES Lecture, University of Texas, Austin, TX, February 2011.
- T143. Invited CVS Lecture, University of Texas, Austin, TX, February 2011.

- T142. Invited Lecture, Workshop on Latest Trends and Developments in Computational Technology and Methods for Solids, Structures, Fluids and Fluid-Structure Interaction, La Jolla, CA, September 2010.
- T141. Invited Lecture, Department of Mathematics, Jacobs University, Bremen, Germany, September 2010.
- T140. Invited Lecture, Department of Mathematik, Freie Universität Berlin, Berlin, Germany, August 2010.
- T139. Plenary Lecture, Workshop on Unstructured Meshes in Dynamical Spacetimes, Jena, Germany, August 2010.
- T138. Lecture, 2010 DTRA Technical Review, Washington, D.C., August 2010.
- T137. Lecture, 26th Pacific Coast Gravity Meeting (PCGM26), San Diego, CA, March 2010.
- T136. Plenary Lecture, Symposium on Mathematical Systems Biology, UCI, Irvine, California, January 2010.
- T135. Minisymposium Lecture, ICNAAM 2009, Crete, Greece, September 2009.
- T134. Plenary Lecture, Workshop on Numerical Methods for Geometric Partial Differential Equations, SFB/TR 71 Geometric Partial Differential Equations, Freiburg, Germany, September 2009.
- T133. Lecture, 2009 DTRA Technical Review, Washington, D.C., August 2009.
- T132. Plenary Lecture, Numerische Mathematik 50, Munich, Germany, June 2009.
- T131. Plenary Lecture, FEniCS 2009 Workshop, Oslo, Norway, June 2009.
- T130. Plenary Lecture, 5th Annual Structured Integrators Workshop, Caltech, Pasadena, CA, May 2009.
- T129. Lecture, 25th Pacific Coast Gravity Meeting (PCGM25), Eugene, OR, March 2009.
- T128. Colloquium, Department of Mathematics, University of Tennessee, Knoxville, TN, September 2008.
- T127. Colloquium, Department of Mathematics, University of Kentucky, Lexington, KY, September 2008.
- T126. Colloquium, Department of Mathematics, Purdue University, West Lafayette, IN, September 2008.
- T125. Plenary Lecture, Herbert Bishop Keller Memorial Symposium, California Institute of Technology, Pasadena, CA, September 2008.
- T124. Colloquium, Department of Mathematical Sciences, RPI, Troy, NY, July 2008.
- T123. Invited Minisymposium Lecture on Recent Advances in A Posteriori Error Estimation and Adaptive Methods, SIAM Annual Meeting, San Diego, CA, July 2008.
- T122. Invited Minisymposium Lecture on PDE Software and Applications, SIAM Annual Meeting, San Diego, CA, July 2008.
- T121. Invited Lecture, Foundations of Computational Mathematics, Hong Kong, June 2008.
- T120. Invited Lecture, Schnelle Löser für partielle Differentialgleichungen, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, May 2008.
- T119. Fachbereichs-Kolloquium, Department of Mathematik, Freie Universität Berlin, Berlin, Germany, May 2008.
- T118. Invited Lecture, Max Planck Institute for Gravitational Physics (Albert Einstein Institute – AEI), Golm, Germany, May 2008.
- T117. Colloquium, Department of Mathematics, Oxford, UK, May 2008.
- T116. Colloquium, Department of Mathematics, University of Arizona, Tucson, AZ, May 2008.
- T115. Colloquium, Department of Mathematics, California State University Northridge, Northridge, CA, April 2008.
- T114. Lecture, 24th Pacific Coast Gravity Meeting (PCGM24), Santa Barbara, CA, March 2008.
- T113. Plenary Lecture, 18th International Conference on Domain Decomposition Methods, Jerusalem, Israel, January 2008.
- T112. Colloquium, Applied and Computational Mathematics, California Institute of Technology, Pasadena, CA, November 2007.
- T111. Invited Minisymposium Lecture on Computational Geometry and Analysis, Ninth US National Congress on Computational Mechanics, San Francisco, CA, July 2007.
- T110. Invited Minisymposium Lecture on Adaptive and Multilevel Methods: Design, Analysis and Application, ICIAM Conference, Zurich, Switzerland, July 2007.
- T109. Invited Minisymposium Lecture on Applications and Numerical Approximation of Geometric Partial Differential Equations, ICIAM Conference, Zurich, Switzerland, July 2007.
- T108. Lecture, CTBP Site Visit, La Jolla, CA, June 2007.
- T107. Invited Lecture, CCR/IDA, La Jolla, CA, June 2007.

- T106. Colloquium, Department of Mathematics, Michigan State University, Lansing, MI, April 2007.
- T105. Keynote Speaker, CSE Symposium, University of Illinois at Urbana-Champaign, Champaign, IL, April 2007.
- T104. Invited Minisymposium Lecture on the Development and Application of Adaptive Methods for Partial Differential Equations, SIAM Conference on Computational Science and Engineering, Costa Mesa, CA, February 2007.
- T103. Invited Panelist, Special Session on CSE Research Directions and Enabling Technology, SIAM Conference on Computational Science and Engineering, Costa Mesa, CA, February 2007.
- T102. Invited Panelist, Special Session on CSE Programs and Disciplinary Degree Programs, SIAM Conference on Computational Science and Engineering, Costa Mesa, CA, February 2007.
- T101. Invited Lecture, Special Session on Numerical General Relativity, Joint AMS Conference, New Orleans, LA, January 2007.
- T100. Seminar, Department of Mathematics, University of Arizona, Tucson, AZ, November 2006.
- T99. Colloquium, Department of Mathematics, University of Arizona, Tucson, AZ, November 2006.
- T98. Lecture, NSF/CTBP Site Visit, University of California, San Diego, CA, November 2006.
- T97. Seminar, Department of Mathematics, University of California at Irvine, Irvine CA, October 2006.
- T96. Lecture, Second Multiscale Workshop, Department of Mathematics, Colorado State University, Fort Collins, CO, September 2006.
- T95. Invited Lecture, Institute of Computational Mathematics, Chinese Academy of Sciences, Beijing, China, August 2006.
- T94. Invited Lecture, International Conference on Multilevel Iterative Methods, Peking University, Beijing, China, August 2006.
- T93. Seminar, Mechanical and Aerospace Engineering, University of California, San Diego, CA, June 2006.
- T92. Lecture, NBCR PI Meeting, University of California, San Diego, CA, June 2006.
- T91. Invited Lecture, Global Problems in Mathematical Relativity, Isaac Newton Institute for Mathematical Sciences, University of Cambridge, Cambridge, U.K., December 2005.
- T90. Invited Lecture, IPAM/UCLA Workshop on Bridging Time and Length Scales in Materials Science and Bio-Physics, UCLA, Los Angeles, CA, September 2005.
- T89. Invited Lecture, IPAM/UCLA Workshop on Bridging Time and Length Scales in Materials Science and Bio-Physics, UCLA, Los Angeles, CA, September 2005.
- T88. Invited Lecture, 14th International Meshing Roundtable, San Diego, CA, September 2005.
- T87. Invited Lecture, Workshop on Geometry and Symmetry in Numerical Computation, Colorado State University, Fort Collins, CO, August 2005.
- T86. Invited Lecture, BIRS Numerical Relativity Workshop, Pacific Institute for the Mathematical Sciences, Banff International Research Station (BIRS), Banff AB, Canada, April 2005.
- T85. Invited Lecture, Computing the Future Lecture Series, Center for Computation and Technology, Louisiana State University, Baton Rouge, LA, February 2005.
- T84. Invited Lecture, CTBP Summer Workshop, University of California, San Diego, CA, August 2004.
- T83. Invited Lecture, Third DOE Workshop on Multiscale Modeling, Broomfield, CO, July 2004.
- T82. Colloquium, Department of Mathematics, University of Utah, Salt Lake City, UT, April 2004.
- T81. Colloquium, Applied and Computational Mathematics, California Institute of Technology, Pasadena, CA, April 2004.
- T80. Invited Lecture, Conference on Multiscale Computational Modeling for Biomedical Research, University of California, San Diego, CA, March 2004.
- T79. Applied Mathematics Seminar, Department of Mathematics, Colorado State University, Fort Collins, CO, March 2004.
- T78. Colloquium, Department of Mathematics, Colorado State University, Fort Collins, CO, March 2004.
- T77. Invited Lecture, IPAM/UCLA Geometric Flows Workshop, UCLA, Los Angeles, CA, February 2004.
- T76. Invited Lecture, AIM/Stanford Relativity Workshop, Stanford University, Stanford, CA, November 2003.
- T75. CIMMS Seminar, California Institute of Technology, Pasadena, CA, February 2003.

- T74. Invited Minisymposium Lecture on Multiscale Numerical Methods, SIAM Conference on Computational Science and Engineering, San Diego, CA, February 2003.
- T73. Numerical Relativity Seminar, California Institute of Technology, Pasadena, CA, January 2003.
- T72. Four Invited Lectures, Parallel Scientific Computing Workshop, Peking University, Beijing, China, July 2002.
- T71. Invited Lecture, Hot Topics Workshop on Numerical Relativity, Institute for Mathematics and its Applications, Minneapolis, MN, June 2002.
- T70. CACR Seminar, California Institute of Technology, Pasadena, CA, April 2002.
- T69. Plenary Lecture, 14th International Conference on Domain Decomposition Methods, Mexico City, Mexico, January 2002.
- T68. Invited Lecture, Schnelle Löser für partielle Differentialgleichungen, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, May 2001.
- T67. Seminar, Department of Mathematics, Colorado State University, February 2001.
- T66. Seminar, KTH, Stockholm, Sweden, September 2000.
- T65. Seminar, Chalmers University of Technology, Goteborg, Sweden, September 2000.
- T64. Seminar, Center for Applied Scientific Computing, Lawrence Livermore National Laboratory, Livermore, CA, August 2000.
- T63. Invited Lecture, Conference on Solution Methods for Large-Scale Nonlinear Problems (a.k.a. The Root Finders Ball), Pleasanton, CA, July 2000.
- T62. Analysis Seminar, Department of Mathematics, University of Southern California, Los Angeles, CA, May 2000.
- T61. Lecture in the MSRI Program on A posteriori Error Estimation and Adaptive Approaches in the Finite Element Method, Berkeley, CA, April 2000.
- T60. Lecture, 16th Pacific Coast Gravity Meeting (PCGM16), California Institute of Technology, Pasadena, CA, March 2000.
- T59. Contributed Presentation, 12th International Conference on Domain Decomposition Methods, Chiba University, Chiba, Japan, October 1999.
- T58. Colloquium, Department of Physics, The Pennsylvania State University, State College, PA, September 1999.
- T57. Colloquium, Department of Mathematics, The Pennsylvania State University, State College, PA, September 1999.
- T56. Lecture, Schnelle Löser für partielle Differentialgleichungen, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, May 1999.
- T55. Applied Mathematics Colloquium, California Institute of Technology, Pasadena, CA, May 1999.
- T54. Lecture, Finite Element Circus, Pennsylvania State University, State College, PA, May 1999.
- T53. Seminar, Department of Mathematics, Stanford University, Stanford, CA, December 1998.
- T52. Seminar, Center for Applied Scientific Computing, Lawrence Livermore National Laboratory, Livermore, CA, December 1998, December 1998.
- T51. Seminar, Summer School on Finite Element Methods, Department of Mathematics, ETH/Zurich, Zurich, Switzerland, July 1998.
- T50. Seminar, Summer School on Finite Element Methods, Department of Mathematics, ETH/Zurich, Zurich, Switzerland, July 1998.
- T49. Seminar, Copper Mountain Conference on Iterative Methods, Copper Mountain, CO, April 1998.
- T48. Lecture, The Finite Element Circus, University of Colorado, Denver, CO, March 1998.
- T47. Colloquium, Department of Mathematics, The Pennsylvania State University, State College, PA, February 1998.
- T46. Thorne Relativity Group Seminar, Department of Physics, California Institute of Technology, Pasadena, CA, December 1997.
- T45. Seminar, Department of Mathematics, University of California, San Diego, CA, November 1997.
- T44. Seminar, Summer School on Multilevel Methods, Department of Mathematics, Tsian-Tan University, Changsha, People's Republic of China, August 1997.
- T43. Seminar, Department of Applied Mathematics and Theoretical Physics, Cambridge University, Cambridge, England, April 1997.

- T42. Seminar, Max-Planck-Institute for Gravitationsphysik, Albert-Einstein-Institut, Potsdam-Berlin, Germany, March 1997.
- T41. Seminar, Departement Computerwetenschappen, Katholieke Universiteit Leuven, Belgium, March 1997.
- T40. Seminar, Department of Mathematics, University of California at Irvine, Irvine, CA, February 1997.
- T39. Seminar, Department of Mathematics, Arizona State University, Tempe, AZ, February 1997.
- T38. Seminar, 18th Texas Symposium on Relativistic Astrophysics, Chicago, IL, December 1996.
- T37. Seminar, Elasticity Workshop, Department of Mathematics, University of Kansas, Kansas City, KA, July 1996.
- T36. Invited Minisymposium Lecture on Mathematical Molecular Modeling, SIAM Annual Meeting, Kansas City, KA, July 1996.
- T35. Seminar, Department of Mathematics, Arizona State University, Tempe, AZ, March 1996.
- T34. Seminar, Department of Mathematics, University of Colorado, Denver, CO, February 1996.
- T33. Seminar, Department of Mathematics, Colorado State University, Fort Collins, CO, February 1996.
- T32. Colloquium, Department of Mathematics, Colorado State University, Fort Collins, CO, February 1996.
- T31. Seminar, Department of Mathematics, University of California, Irvine, CA, February 1996.
- T30. Seminar, Department of Mathematics and Kansas Institute for Theoretical and Computational Science, University of Kansas, Lawrence, KA, April 1995.
- T29. Applied Mathematics Seminar, California Institute of Technology, Pasadena, CA, March 1995.
- T28. Department of Mathematics Seminar, UCLA, Los Angeles, CA, February 1995.
- T27. Department of Mathematics Seminar, Courant Institute of Mathematical Sciences, New York University, New York, NY, December 1994.
- T26. Department of Biochemistry and Molecular Biophysics Seminar, Columbia University, New York, NY, November 1994.
- T25. Invited Lecture, Workshop on Algorithms for Macromolecular Modeling, Lawrence, KA, October 1994.
- T24. Keller Group Lecture, Applied Math, California Institute of Technology, Pasadena, CA, September 1994.
- T23. CRPC Meeting, Rice University, Houston TX, August 1994.
- T22. Keller Group Lecture, Applied Math, California Institute of Technology, Pasadena, CA, August 1994.
- T21. Contributed Presentation, SIAM Annual Conference, San Diego, CA, July 1994.
- T20. Keller Group Lecture, Applied Math, California Institute of Technology, Pasadena, CA, July 1994.
- T19. Department of Chemistry Seminar, California Institute of Technology, Pasadena, CA, April 1994.
- T18. Department of Mathematics Colloquium, University of Houston, Houston, TX, March 1994.
- T17. Department of Mathematics Colloquium, University of California at San Diego, San Diego, CA, February 1994.
- T16. CRPC Annual Meeting, California Institute of Technology, Pasadena, CA, January 1994.
- T15. Keller Group Lecture, Applied Math, California Institute of Technology, Pasadena, CA, December 1993.
- T14. Contributed Presentation, Seventh International Conference on Domain Decomposition Methods, The Pennsylvania State University, State College, PA, November 1993.
- T13. Department of Computer Science Colloquium, University of Illinois, Urbana, IL, October 1993.
- T12. Four Invited Lectures, Department of Biochemistry and Molecular Biophysics, Columbia University, New York, NY, September 1993.
- T11. CRPC Invited Forum, Applied Mathematics, California Institute of Technology, Pasadena, CA, May 1993.
- T10. Department of Biochemistry and Molecular Biophysics Seminar, Columbia University, New York, NY, July 1992.
- T9. Department of Mathematics Colloquium, University of Kansas, Lawrence, KA, May 1992.
- T8. Numerical analysis seminar, University of Illinois, Urbana, IL, January–May 1992.
- T7. A summer series of lectures presented at Lawrence Livermore National Laboratory, Livermore, CA, July 1991.

- T6. Contributed Presentation, Second International Conference on Industrial and Applied Mathematics, Washington, D.C., July 1991.
- T5. Contributed Presentation, Copper Mountain Multigrid Conference, Copper Mountain, CO, April 1991.
- T4. Contributed Presentation, Cray Research and Development Grant Program, Urbana, IL, April 1990.
- T3. Contributed Presentation, SIAM Annual Conference, Chicago, IL, July 1990.
- T2. Poster Presentation, UIUC Annual Review of Computing, Urbana, IL, September 1990.
- T1. Contributed Presentation, Parallel Circus, Toronto, Canada, October, 1990.

WORKSHOPS, MINISYMPOSIA, LONG-TERM RESEARCH VISITS

- W54. *Southern California Analysis and Partial Differential Equations Conference*, Workshop (Co-Organizer, with J. Sterbenz, J. Isenberg), UC San Diego, La Jolla, CA, May 2012.
- W53. *Physics at CSU: Neutrinos to Nano Science*, CSU Resarch Colloquium, Colorado State University, Fort Collins, CO, March 2012.
- W52. *JTO Faculty Fellowship Lecturer (Visit 2 of 2)*, Institute for Computational Engineering and Science (ICES), University of Texas, Austin, TX, January 2012.
- W51. *JTO Faculty Fellowship Lecturer (Visit 1 of 2)*, Institute for Computational Engineering and Science (ICES), University of Texas, Austin, TX, December 2011.
- W50. *Workshop on Geometric Partial Differential Equations: Theory, Numerics and Applications*, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, November 2011.
- W49. *Exploiting Geometry in the Development of Numerical Methods of Partial Differential Equations*, Minisymposium (Primary Organizer, with A. Demlow, R. Szypowski), SIAM Analysis of PDE Conference, San Diego, CA, November 2011.
- W48. *Geometric Numerical Methods for PDE*, Workshop (Primary Organizer, with A. Demlow, A. Gillette, Y. Zhu), San Diego, CA, November 2011.
- W47. *Workshop on Schnelle Löser für partielle Differentialgleichungen*, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, May 2011.
- W46. *Workshop on Advances and Challenges in Computational General Relativity*, Brown University, Providence, RI, May 2011.
- W45. *Numerical Methods for Implicit Models in Biomolecular Systems*, Minisymposium (Co-Organizer, with J. Hameed), SIAM CSE Conference, Reno, NV, March 2011.
- W44. *DD20: 20th International Conference on Domain Decomposition Methods*, San Diego, CA, February 2011.
- W43. *WUMDS: Workshop on Unstructured Meshes in Dynamical Spacetimes*, Jena, Germany, August 2010.
- W42. *SI2010: 6th Annual Structured Integrators Workshop*, UC San Diego, La Jolla, CA, April 2010.
- W41. *PCGM26: 26th Pacific Coast Gravity Meeting*, UC San Diego, La Jolla, CA, March 2010.
- W40. *REB60: Adaptive and Multilevel Methods for Partial Differential Equations*, UC San Diego, La Jolla, CA, November 2009.
- W39. *Mathematical Aspects of General Relativity*, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, October 2009.
- W38. *Workshop on Numerical Methods for Geometric Partial Differential Equations, SFB/TR 71 Geometric Partial Differential Equations*, Freiburg, Germany, September 2009.
- W37. *FEniCS Workshop 2009*, Simula Research, Oslo, Norway, June 2009.
- W36. *Fifth Annual Structured Integrators Workshop*, California Institute of Technology, Pasadena, CA, May 2009.
- W35. *IMA Workshop on Solvation*, University of Minnesota, Minneapolis, MN, December 2008.
- W34. *IMA Year-long Program on Mathematics and Chemistry*, University of Minnesota, Minneapolis, MN, July 2008 – June 2009.
- W33. *Schnelle Löser für partielle Differentialgleichungen*, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, May 2008.
- W32. *Recent Developments in Numerical Methods and Algorithms for Geometric Evolution Equations (Co-Organizer, with X.-B. Feng, H. Zhao)*, Mathematical Sciences Research Institute (MSRI), Berkeley, CA, March 2007.

- W31. *Mathematical Research Challenges in Optimization of Complex Systems*, DOE Funding Workshop, Bethesda, MD, December 2006.
- W30. *Workshop on Adaptive and Multilevel Methods for PDE (Co-Organizer, with J. Xu)*, Peking University, Beijing, China, August 2006.
- W29. *Global Problems in Mathematical Relativity*, Isaac Newton Institute for Mathematical Sciences, University of Cambridge, Cambridge, U.K., August 2005 – December 2005.
- W28. *IPAM/UCLA Workshop on Bridging Time and Length Scales in Materials Science and Bio-Physics*, UCLA, Los Angeles, CA, September 2005.
- W27. *Workshop on Geometry and Symmetry in Numerical Computation*, Colorado State University, Fort Collins, CO, August 2005.
- W26. *Schnelle Löser für partielle Differentialgleichungen*, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, May 2005.
- W25. *IPAM/UCLA Workshop on Relativistic Astrophysics (Co-Organizer)*, UCLA, Los Angeles, CA, May 2005.
- W24. *BIRS Numerical Relativity Workshop*, Banff International Research Station, Banff AB, Canada, April 2005.
- W23. *CTBP Summer Workshop*, UC San Diego, La Jolla, CA, August 2004.
- W22. *Third DOE Workshop on Multiscale Modeling*, Broomfield, CO, July 2004.
- W21. *IMA Workshop on Compatible Discretizations*, University of Minnesota, Minneapolis, MN, May 2004.
- W20. *IPAM/UCLA Workshop on Geometric Flows*, UCLA, Los Angeles, CA, February 2004.
- W19. *Miami Waves Workshop (session Co-Organizer)*, University of Miami, Miami, FL, January 2004.
- W18. *Dept. of Physics*, California Institute of Technology, Pasadena, CA, January 2004 – July 2004.
- W17. *AIM/Stanford Workshop on Relativity*, Stanford University, Stanford, CA, November 2003.
- W16. *Caltech Program on Numerical Relativity: Initial Data Problem (Co-Organizer)*, California Institute of Technology, Pasadena, CA, January 2003 – May 2003.
- W15. *Caltech Program on Numerical Relativity: Formulations of the Evolution Equations (Co-Organizer)*, California Institute of Technology, Pasadena, CA, September 2002 – December 2002.
- W14. *Beijing parallel computing workshop (session coordinator)*, Peking University, Beijing, China, June 2002.
- W13. *IMA Workshop on Numerical Relativity*, University of Minnesota, Minneapolis, MN, June 2002.
- W12. *Schnelle Löser für partielle Differentialgleichungen*, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, May 2001.
- W11. *Claes Johnsson Research Group*, Chalmers University, Goteborg, Sweden, September 2000.
- W10. *A posteriori Error Estimation and Adaptive Approaches in the Finite Element Method*, Mathematical Sciences Research Institute (MSRI), Berkeley, CA, April 2000.
- W9. *Schnelle Löser für partielle Differentialgleichungen*, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, May 1999.
- W8. *Seminar fuer Angewandte Mathematik*, ETH Zuerich, Zuerich, Switzerland, July 1998.
- W7. *Dept. of Mathematics*, Tsian-Tan University, Changsha, People's Republic of China, August 1997.
- W6. *Dept. of Applied Mathematics and Theoretical Physics*, Cambridge University, Cambridge, England, April 1997.
- W5. *Departement Computerwetenschappen*, Katholieke Universiteit Leuven, Leuven, Belgium, March 1997.
- W4. *Dept. of Mathematics*, University of Kansas, Lawrence, KA, April 1995.
- W3. *Dept. of Biochem. and Biophys.*, Columbia Univ., New York, NY, November 1994.
- W2. *Dept. of Mathematics*, UCSD, San Diego, CA, September 1994.
- W1. *Dept. of Biochem. and Biophys.*, Columbia Univ., New York, NY., September 1993.