

**CURRICULUM VITAE****Tony F. Chan**

August, 2002

**Contact Information:** College of Letters and Science, 1312 Murphy Hall, Box 951438, Univ. of Calif. at Los Angeles, Los Angeles, CA 90095-1438.

Tel: (310) 8251042 Fax: (310) 825 9368.

Email: [tonyc@college.ucla.edu](mailto:tonyc@college.ucla.edu). Homepage: <http://www.math.ucla.edu/~chan>.

**Positions Held:**

- Dean, Division of Physical Sciences, UCLA. July 2001 - present.
- Director, Institute for Pure and Applied Mathematics (an NSF-funded institute at UCLA); July 2000 - August 2001.
- Professor, UCLA Department of Mathematics, 1986-present; Graduate Vice Chair (96-97), Chair (1997-2000).
- Associate Professor, Computer Science Dept., Yale University, 1983-1986.
- Assistant Professor, Computer Science Dept., Yale University, 1979-1983.
- Research Fellow, Caltech, 1978-1979.

**Education:**

- Ph.D. in Computer Science, Stanford University, June 1978.
- M.S. (Aeronautics), B.S. (Engineering), Caltech, June 1973. Honors.

**Honors:**

- Distinguished Visitor, United College, Chinese University of Hong Kong, Nov 2002.
- Chair, Search Committee for NSF Director of Division of Mathematical Sciences, 2002.
- Plenary speaker: Joint Mathematics Meeting, January 2002, San Diego.
- Plenary speaker: Int'l Congress of Chinese Mathematicians, Dec 2001, Taipei.
- Member, NSF Math and Physical Science Advisory Committee (1999-2002).
- Co-Chair (with R. Tapia), Soc. Industrial & Applied Math (SIAM) Nat'l Meeting, Puerto Rico, July 2000.
- Chair, Local Organizing Committee, American Math Society (AMS) Symposium on Mathematical Challenges of the 21st Century, UCLA, August 2000.

- Plenary speaker: SIAM Nat'l Meeting, San Diego, July 1989.

#### **Other Plenary Lectures at Major Conferences and Schools:**

- Plenary speaker: European Multigrid Conference, Gent, Belgium, Sept 1999.
- Plenary speaker: Dundee Conferences on Numerical Analysis, UK, June 1999.
- Plenary speaker: GAMM Conference on Multigrid, Bonn, Germany, Oct. 1998.
- Principal Lecturer: Von Karman Institute, Brussels, Belgium, March 1997.
- Plenary speaker: SIAM Conf. on Sparse Matrices, Cour d'Alene, Oct. 1996.
- Professor, Dutch Summer School on Numerical Analysis, Zeist, Sept. 1995.
- Plenary speaker: SIAM Conf. on Parallel Processing, Norfolk, Mar 1993.
- Professor, Ecole d'ete, Analyse Numerique, Le Breau, France, June 1991.

#### **Research Interests:**

The general area of interdisciplinary mathematics. Specific current projects include differential equation based image processing and computer vision, multiscale computational methods, optimization and algebraic multigrid methods for VLSI circuit layout and algorithms on advanced architecture parallel computers. See my research group webpage: [www.math.ucla.edu/~imagers](http://www.math.ucla.edu/~imagers).

#### **Visiting Positions:**

- Visiting Professor, Math Dept., The Nat'l Univ. of Singapore, Dec 6-18, 1999.
- Visiting Professor of Mathematics, The Chinese University of Hong, 8/94-12/94. (Taught classes, ran seminars.)
- Visiting Professor of Computer Science, The Chinese University of Hong Kong, 8/92-8/93. (Taught classes, ran seminars, supervised 3 Master degree students.)
- Visiting Scientist, European Centre for Research and Advanced Training in Scientific Computation (CERFACS), Toulouse, France, 6/92-8/92.
- Mini-course Lecturer, CERFACS, Toulouse, France, 11/90.
- Visiting Professor, Applied Math Dept., National Tsing Hua Univ. Hsinch, Taiwan, 12/89 (2 weeks lecture series).
- Visiting Professor, USSR Academy of Science, Moscow, 9/88.
- Visiting Professor, Math Dept., Univ. of Hong Kong, Oct-Nov, 1987.
- Visiting Scientist, Research Institute for Advanced Computer Science (RIACS), NASA Ames, 1/86-8/86. (Sabbatical leave)

- Visiting Faculty, Univ. of Hong Kong, Center of Computer Studies and Applications, 9/85-12/85. (Taught classes, ran seminars.)
- Visiting Scientist, Inst. National Rechere Informatique et Automatique (INRIA), Le Chesnay, France, 1/83-5/83.

### **Administrative and Leadership Experience:**

- **Dean**, Division of Physical Sciences, UCLA, July 1, 2001 - present. (<http://www.college.ucla.edu/physsci.htm>.) *Oversee 6 departments, several research institutes, over 200 ladder faculty members, 1700 undergraduate majors, 700 graduate students, \$60M in annual research awards. Responsibilities include: policy and planning, budget, faculty recruitment, retention and promotion, education & research programs, fund raising.*
- **Director**, Institute for Pure and Applied Mathematics (IPAM), July 2000 - August 2001. (<http://www.ipam.ucla.edu>.) *One of 3 NSF-funded national math institutes, \$2.5M annual funding, runs programs on interface between the mathematical sciences and other fields, including science, engineering, medical sciences, business, and social and economic sciences. Responsibilities included: budget, staff, program planning and solicitation, liason with NSF, general scientific communities, UCLA administration and governing boards.*
- **Chair** (1997-2000), **Graduate Vice Chair** (1996-1997), Mathematics Department, UCLA. (<http://www.math.ucla.edu>.) *Led one of the largest departments at UCLA (about 60 ladder faculty, over 25 adjuncts instructors), with the largest math major in the US (graduating about 200 per year), 10th ranked in 2002 US News & World Report, 5th ranked in Applied Math. As Chair, I led the department in successfully getting IPAM to UCLA, obtaining a NSF VIGRE grant (\$1M/year) to support graduate education, bringing the Millenium Meeeting "Mathematical Challenges of the 21st Century" of the American Math Society to UCLA (over 1000 participants from around the world) and raising money for a Distinguished Lecture Series.*
- Graduate, University of California Management Institute, Berkeley, July 2002. *Leadership training.* (<http://www.ucop.edu/humres/ucmi/>.)

### **Editorial Boards:**

- Numerische Matematik (2001 - ): Editor-in-Chief (with F. Bressis and M. Griebel) since 2002. (*Leading European journal in Computational Math.*)
- Asian J. Math (1997 - ). (*International Press, Editor in Chief: S.T. Yau*).
- Elec. Trans. Numer. Anal. (1995 - ). (<http://etna.mcs.kent.edu/>)
- J. Comp. Math. (1993 - ). (*Published by Chinese Acad. Sci., Beijing.*)
- Numerical Algorithms (1992 - ). (*Kluwer*)

- Numerical Linear Algebra and Applications (1991 - ). (*Wiley*)
- SIAM J. Sci. Comp. (1987 - 2000).
- SIAM Review (1989 - 1998).
- Cambridge International Series on Parallel Computation, Cambridge University Press (1988 - 1997 ).
- Series on Algorithms and Architectures for Scientific Computing, Manchester University Press (1988 - 1997).
- ACM Trans. Math. Software (1987-1990).

#### **Service to the Professions:**

- AMS Editorial Board Committee (elected) Nov. 2000 - present.
- SIAM Fellows Program Committee, Nov. 2000 — present.
- SIAM Committee on Science Policy (2000 -). (*Active in formulating and giving input to national policies on science funding and education.*)
- AMS Committee on Committees, 1999 - 2001.
- SIAM Committee on Human Rights (1993-5).
- SIAM Council (elected), 1992-94.
- Board of Directors, ACM Special Interest Group on Numerical Mathematics (SIGNUM), July 1985 - 1988.

#### **National and International Advisory Boards and Panels:**

- Invited essayist, The Carnegie Foundation Initiative on the Doctoral Program, Fall 2002.
- Member, Dept. of Energy Review Team, the ASCI Alliance Program at Stanford University's Center for Integrated Turbulence Simulations (CITS), Oct 24-25, 2002.
- Chair, Search Committee for NSF Director of Division of Mathematical Sciences, Dec 2001 - Aug 2002. (*Director's term is normally 3 years, committee's responsibility is to search for appropriate candidates within the math community.*)
- External Reviewer, Computation Directorate, Lawrence Livermore Nat'l Lab., 2001 and 2002. (*Review a major Directorate of LLNL and report to Lab. Director B. Tartar.*)
- External Reviewer, Dept. of Math., Univ. of Colorado at Denver, March 19-20, 2002.

- NSF Div. Math. Sci. Committee of Visitors, 2001. (*Triennial review committee on activities in the Div. of Math Sci in NSF.*)
- Panelist, NSF Div. Math. Sci. Workshop on "Opportunities for the Mathematical Sciences", June 26-27, 2000.  
(Report: <http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf0120>.)
- Moderator, Panel on Computer Vision, Board on Math Sci Workshop on "Interface Between the Mathematical Sciences and Computer Sciences", Nat'l Acad. Sci., DC. April 28-29, 2000.  
(See <http://www.cs.umd.edu/users/oleary/nasworkshop.html>)
- Board of Trustees, Institute of Pure and Applied Math (IPAM), UCLA, 1999 - 2000.
- Member, NSF Math and Physical Science Advisory Committee (1999 - 2002). (See <http://www.nsf.gov/mps/acweb/apr00/start.htm>.) (*Advises NSF Director R. Colwell and MPS Assistant Director R. Eisenstein on activities in the MPS Directorate.*)
- NSF Div. Math. Sci. Vertical Integrated Graduate Research and Education (VIGRE) Program review panel, 1999.
- Moderator, Panel on "The future of applied linear algebra: identifying research trends for the 21st century", Plemmons Conference, Wake Forest Univ., Winston-Salem, NC (Jan. 1999).
- External Review Committee, Center Adv. Sci. Comp. (CASC), LLNL, 1998.
- NSF Panel on Sci. Comp. Research Environment in Math. Sci. (SCREMS) (Apr 1995).
- Working group member, Workshop on Petaflop Computing, Pasadena (Feb. 1995).
- Review Committee, Swedish Nat'l Board for Industrial and Technical Development (NUTEK), Program on Computational methods for Super and Parallel Computers. January 1993.
- Member of Science Council for App. Math and Comp. Sci. (reviews ICASE and RIACS), Univ. Space Research Association (USRA). 1988 - 1992.

#### **University Service:**

- Member of Search Committee, Dean of School of Engineering, UCLA, ongoing.
- UCLA Information Technology Policy Board, Nov. 2000 — present. (*Formulates long term plan for IT at UCLA.*)
- Affiliated faculty, California Nano-Systems Institute, UCLA/UCSB, Nov. 2000 — present. (See <http://www.cnsi.ucla.edu>.)

- UCLA Computer Science Task Force, 2000 — 2001. (*Reviewed and recommended new directions for Computer Science Dept.*)

### Conference Organization:

- Organizing Committee, First SIAM Conf. on Imaging Science, Boston, Mar 4-6, 2002. (<http://www.siam.org/meetings/is02/index.htm>)
- Organizing Committee, Latsis Symposium on Iterative Solvers for Large Linear Systems, ETH, Zurich, Feb 18-21, 2002. (<http://ru13.inf.ethz.ch:8080/cg2002/WEB/index.html>)
- Program Committee, IEEE Workshop on "Scale-Space and Morphology in Computer Vision", Vancouver, July 7-8, 2001. (<http://www.computer.org/cspress/CATALOG/pr01278.htm>)
- Co-Chair (with J. Xu) of Scientific Committee, Int'l Symposium on Computational and Applied PDEs, Zhang jiajie, Hunan, China, July 1-5, 2001. (<http://www.math.psu.edu/ccma/pde2001/>)
- Program Committee, Preconditioning 2001, Tahoe City, April 29 - May 1, 2001. (<http://www.nersc.gov/conferences/pc2001/confsite.html>)
- Co-chair (with Richard Tapia), SIAM National Meeting, Puerto Rico, July 2000. (See <http://www.siam.org/meetings/an00/>.)
- Chair, Local Organizing Committee, AMS Symposium on Mathematical Challenges of the 21st Century, UCLA, August 2000. (<http://www.math.ucla.edu/newsevents/news/ams2000.html>, <http://www.ams.org/amsmtgs/mathchall.html>.)
- Scientific Program Committee: Numerical and Computational Challenges in Science and Engineering, Fields Inst., Canada (2001). (<http://www.fields.utoronto.ca/numerical.html>.)
- Co-organizer (with Tim Barth of NASA Ames and Robert Haims of MIT), Yosemite Workshop on Multiscale & Multi-resolution Methods, Yosemite (Nov. 2000). (See <http://raphael.mit.edu/yosemite/>.)
- Scientific Committee, Int'l Congress of Chinese Mathematicians, Beijing, Dec. 1998; Taipei, Dec. 2001. (<http://www.math.tamu.edu/huai-dong.cao/iccm/> and <http://math.cts.nthu.edu.tw/Mathematics/iccm2001/background.htm>.)
- Organizer, minisymposiums on "Nonlinear PDE Methods and Models in Image Processing" and "DD/MG Algorithms in unstructured grid applications", SIAM Nat'l Meeting, Stanford, CA (July 1997).
- Co-organizer, Winter School on Iterative Methods in Scientific Computing, Chinese Univ. of Hong Kong, Dec 1995.

- Scientific Committee: Int'l Linear Algebra Year, CERFACS, France (1995-96).
- Scientific Committee: 3rd Int'l Conf. on Advances in Numer. Meths. and Applic. Sofia, Bulgaria (Aug 1994).
- Organizer of Symposium on "Linear Algebraic Issues in Signal and Image Processing", SPIE Meeting, San Diego (Jun 1994).
- Scientific/Organizing Committee, Series of Int'l Conference on Domain Decomposition Methods, 1988 - 2002. (Merida, Mexico, 2002; Lyons, France, 2000; Chiba, Japan, 1999; Greenwich, UK, 1998; Boulder, 1997; Ullensvarng, Norway, 1996; Beijing, China, 1995; Penn. State Univ., Nov. 1993; Lake Como, Italy, 1992; Norfolk, 1991; Moscow, USSR 1990; Houston, 1989; Los Angeles, 1988 (Chair of Local Organizing Comm.)).
- Householder Symposium Committee (organizes triennial int'l symposium on numerical linear algebra), 1993 - present. (Webpage of 2002 meeting: <http://www.maths.strath.ac.uk/matrix/>)
- Co-organizer (with G. Golub), Householder Symposium, Lake Arrowhead, June 1993.
- Chair, Magnus Hestenes Memorial Symposium, Nov. 23, 1991, UCLA.
- Program Committee, Supercomputing 91, San Antonio, Texas, Nov. 1991.
- Co-organizer (with Prof. Shi Zhong-ci), Int'l Conf. on Scientific Computation, Hangzhou, China, Aug 19-24, 1991.

### Media Mention:

- "Interviews with 3 Mathematicians", Hong Kong Economic Daily, June 12, 2002, p. C2. (Separate interviews with Sing-Tung Yau, Esmond Ng and me.)
- "Filling in the Blanks", Science News, May 11, 2002, pp. 299-300. (About my research on image inpainting, reference to my plenary lecture at the Joint Math Meeting in San Diego.) (<http://www.sciencenews.org/20020511/bob10.asp>.)
- Articles in Chinese news media about my appointment as Dean at UCLA: Chinese Daily News (largest circulation Chinese newspaper in US), p. B1, 8/21/2001; Zhong Guo Daily News, 8/11/2001, p. B3.
- "Mathematicians are in short supply in the United States", by Potter Wickware, NatureJobs, August 9, 2001. ([http://www.nature.com/naturejobs/reinvent/09aug01/090801\\_sr.pdf](http://www.nature.com/naturejobs/reinvent/09aug01/090801_sr.pdf).)
- "Newest NSF Institute Opens Its Doors.", Notices of the Amer. Math. Soc., Dec 2000. (<http://www.ams.org/notices/200011/comm-ipam.pdf>.)

- "Math Convention Problems Just Keep On Multiplying", Los Angeles Times, Aug 12, 2000. (<http://www.math.ucla.edu/~chan/latimes-ams2000SAT.html>.)
- "For Mathematicians, 'a Once in a Century Thing", Los Angeles Times, Aug 10, 2000. (<http://www.math.ucla.edu/~chan/latimes-ams2000TH.html>.)
- "In great numbers: MATHEMATICIANS HEAD FOR CAMPUS", UCLA Today, July 25, 2000. (<http://www.today.ucla.edu/html/000725mathematicians.html>.)
- "NSF Opts for Three Institutes: UCLA's IPAM To Join IMA, MSRI", SIAM News, July 1999. (<http://www.siam.org/siamnews/07-99/institutes.htm>.)
- "Mathematics Gets Institutionalized—Again.", Science Magazine, May 14, 1999. (<http://www.sciencemag.org/cgi/content/full/284/5417/1111>.)
- "1999 Innovators", Ambassador Magazine, Trans. World Airline, Jan 1999. I was 1 of about 20 so honored. ([http://www.math.ucla.edu/newsevents/news/twa\\_jan99.html](http://www.math.ucla.edu/newsevents/news/twa_jan99.html).)
- "Mathematics and You in the 21st Century", Sing Tao Daily, Oct 31, 1998. (Dinner speech at Queen's College and King's College Reunion in Los Angeles.) (<http://www.math.ucla.edu/newsevents/news/chair/stdaily103198.html>.)
- "Math Whizzes Want Respect in Equation", front page article, Los Angeles Times, July 14, 1998. Article on applied math research in UCLA Math Dept., initiated by my contacting LA Times when I became Dept. Chair. (<http://www.math.ucla.edu/newsevents/news/latimes071498.html>.)
- Featured interview by Chinese Language Television Station (Cable Channel 18), Fall 1997, in my role as Dept. Chair.

**Current PhD Students:** [Name (Expected Year of degree)]

1. Berta Sandberg (2002)
2. Wei Zhu (2003)
3. Bing Song (2003)
4. Andy Yip (2004)
5. Mark Moellich (2004)
6. Kenton Sze (2004)

**Former PhD Students:** [Name (Year of degree, Univ.) (Current position if known)]

1. Thomas Kerkhoven (1985, Yale) (Prof., CS Dept., U. Illinois.)

2. Danny Goovaerts (1989 Catholic Univ. Leuven, co-advisor: R. Piessens) (Industry)
3. Ray Tuminaro (1989 Stanford, co-advisor: G. Golub) (Staff scientist, Sandia Lab. Livermore, CA.)
4. Diana Resasco (1990 Yale) (Research Scientist, CS Dept., Yale Univ.)
5. Charles Tong (1990 UCLA) (Staff Scientist, Lawrence Livermore Nat'l Lab., Calif.)
6. June Donato (1990 UCLA) (Staff scientist, Oak Ridge Nat'l Lab.)
7. Wai-kin Tsui (1990 UCLA)
8. Jennifer Yu-Chung Chang (1992 UCLA, co-advisor: H.O. Kreiss) (Research staff, Applied Math Dept, Caltech. Now Math faculty at Pasadena City College.)
9. Jian-Ping Shao (1993 UCLA) (Staff Scientist, MacDonald Douglas Co., Long Beach, Calif.)
10. Tedd Szeto (1994, UCLA) (Assistant Prof., Math Dept, Azusa Pacific Univ., Calif.)
11. Man-Chung Yeung (1997, UCLA) (Assistant Prof., Math Dept., UC Irvine. Now Assistant Professor, Math Dept., Univ. Wyoming.)
12. David Strong (1997, UCLA) (PIC Ass. Prof., UCLA. Now Assistant Professor, Math Dept., Pepperdine Univ.)
13. Ilya Sharapov (1997, UCLA) (Staff Scientist, Sun Computers, Mt. View, CA)
14. Susie Go (1998, UCLA) (Staff Scientist, Hewlett Packard, Palo Alto, CA)
15. Peter Blomgren (1998, UCLA) (Adjunct Assistant Prof., Math Dept, Stanford Univ. Mentor: G. Papanicolaou.)
16. Justin W.L. Wan (1998, UCLA) (Forsythe Fellow, SCCM program, Stanford Univ. Now Assistant Professor, CS Dept, Univ. of Waterloo, Canada.)
17. C.K. Wong (1999, UCLA) (Staff Scientist, American Investment Inc.)
18. H.M. Zhou (2000, UCLA) (Postdoc, Applied Math Dept., Caltech. Advisor: Tom Hou). Honorable mention, 2002 Householder Prize (for best PhD thesis in linear algebra in the past 3 years).
19. Janylle Carter (2001, UCLA) (Postdoc, Inst. Math. Applic., Univ. Minnesota.)
20. Sung-Ha Kang (2002, UCLA) (Assistant Professor, Math Dept, Univ. of Kentucky, Lexington, KY.)
21. David Huckaby (2002, UCLA) (Postdoc, Chemistry Dept, Texas Christian Univ.)

**Current Postdocs:** [Name (Year of PhD degree, Univ.)]

1. Selim Esedoglu (2000, NYU)
2. Yalin Wang (2002, U. Washington)

**Former Postdocs:** [Name (Duration) (Current position if known)]

1. Jay C.C. Kuo (1987-1990) (Prof., EE Eng., Univ. So. Cal.)
2. Beth Ong (1989-1992) (Research Scientist, LLNL, Livermore, CA.)
3. Tarek Mathew (1989-1992) (Ass. Prof., Math Dept, Univ. Wyoming)
4. Patrick Ciarlet, Jr. (1993-1994) (Staff scientist, Commissariat Energie Atomique, Paris, France)
5. Jun Zou (1993-1995) (Associate Professor, Math Dept, The Chinese Univ. of Hong Kong)
6. Pep i Mulet (1995-1996) (Ass. Prof., Appl. Math. Dept., Univ. de Valencia, Spain)
7. Ludmil Zikatanov (1995-1997) (Assistant Professor, Math Dept, Penn State)
8. Victor Eijkhout (1995-1997) (Research Staff, CS Dept, U. Tenn. Knoxville)
9. Petr Vanek (1999) (unknown)
10. Joseph Shinnerl (1995-1999) (Instructor and Research Scientist, CS Dept., UCLA)
11. Luminita Vese (1997-2000) (CAM Assistant Prof. Math Dept, UCLA)
12. Jackie Shen (1998-2000) (Assistant Prof., Math Dept, U. Minn.)
13. Elias Jonsson (1997-2000) (Staff Scientist, Eriksson, Stockholm)
14. Francois Malgouyres (2000) (Ecole Normal Superieur, Cachan, France)

**Consulting:**

- Math Soft, Seattle (1997-99).
- Xerox Palo Alto Research Center (1996-98).
- ICASE, NASA Langley (1995-97).
- Research Inst. for Advanced Computer Science, NASA Ames (1986-98).
- SRI Int'l, Menlo Park (1986-92).

**Grants and Contracts:**

- NIH P20MH65166: Computational Biology From Genotype to Phenotype, 2002-2005. Annual Direct Cost: \$700K.
- ONR N00014-02-1-0015: Nonlinear PDE Models and Methods for Image Processing, 2001-2002. \$170K.
- NSF INT-0072863 US-France Program: Multiresolution and Multiscale Algorithms on Unstructured Meshes for Computational Sciences, 2000-03, \$76K.
- NSF DMS-9973341: Variational PDE Models and Computational Methods in Image Processing, 2000-2003, \$300K.
- NSF CISE ACR-0072112: Scalable Multilevel Algorithms in Computational Sciences, 2000-2003, \$450K.
- NSF DMS 9983726: UCLA Math Dept 1999 VIGRE Proposal; 2000-2005, \$4.5M.
- NSF-DMS-9810282: Inst. for Pure and Applied Mathematics, 1999-05, \$12.75M.
- NSF-CCR-9901153: Nonlinear Programming Based Algorithms for Constrained Circuit Placement; 1999-2001, \$85K.
- Semiconductor Research Consortium: Nonlinear Programming for Large Scale Circuit Placement with Complex Constraints; 1999-2000, \$132K.
- NASA AMES NAG 2-1238: Scalable Numerical Algorithms on Non-Heterogeneous Computing Environment with Dynamic Adaptive Routing and Load Balancing; 1998-2000, \$120K.
- Sandia Labs, LG-4440: UCLA/Sandia Multilevel Problem Solver Proposal; 1998-00, \$40K.
- Chevron Research: Multigrid Methods for Oil Reservoir Simulation, 1998-99, \$67K.
- Intel Corp.: Optimization Methods for VLSI Placement, 1998-99, \$25K.
- LLNL ISCR 98-08: Parallel Multigrid Methods in Unstructured Grids for Scientific Computing; 1997-98, \$20K.
- NSF INT-9602089: US/Spain Program: Total Variation Methods in Image Processing; 1997-2000, \$28K.
- NSF-ASC-9720257: Parallel Multilevel PDE Solvers on Unstructured Grids; 1997-2000, \$185K.
- ONR N00014-96-1-0277: Nonlinear PDE Models & Methods for Image Processing; 1996-2001, \$728K.

- NSF DMS 9626755: Comp. Math. Issues in Nonlinear Diff. Models in Image Processing; 1996-2000, \$200K.
- ARO Tenn. Subcontract: Scalable Parallel Numerical Library; 1995-99.
- NSF INT 95-06184: US/Bulgaria Program; 1995-97.
- NSF INT 92-20287: US/Bulgaria Research Program; 1993-95.
- ARO Univ. Tenn. Subcontract: Scalable Parallel Numerical Library; 1993-95.
- NSF DMS 9225092: Household Sympos. XII on Num. Alg.; 1993-94.
- ONR/DARPA: Complex High Reynolds Number Flow; 1992-97.
- NSF-ASC-9201266: Parallel Multiscale Iterative Meth.; 1992-96.
- ARO DAAL03-91-G-0150: Massively Parallel Iterative Meth.; 1991-94.
- NSF: Parallel Iterative Methods; 1991-92.
- NSF: Parallel Multilevel Elliptic Preconditioners; 1990-93.
- ONR: Electro-Magnetic Scattering Probl.; 1990-93.
- AFOSR: Additive Turbulent Decomposition; 1989-92.
- NASA: Parallel Iterative Methods; 1989-90.
- ARO: Num. Meth. for Sparse Eigenvalue; 1989-90.
- DOE: Num. Meth. for Nonlinear Systems; 1987-92.
- NSF: Matrix Algorithms in Signal Proc.; 1987-90.
- NSF: Cognitive Sci. Purchase of CM-2; 1987-88.
- ONR: URI on Complex High Reynolds Number Flows; 1986-91.

(The following list excludes regular departmental seminars.)

### Selected Invited Lectures

Description	Date(s)
Invited Lecturer, Conf. on "Applied Inverse Problems: Theoretical and Computational Aspects," UCLA Lake Arrowhead Conf. Center, May 18-23.	2003
Invited Lecturer, Workshop on "Image Processing and Computational Methods," Univ. of Kentucky, March 21-23.	2003
Invited Lecture, <i>Variational PDE Techniques in Wavelet Transforms and Image Compression</i> , Workshop on "Mathematical Challenges in Scientific and Engineering Computation", The Isaac Newton Inst. for Math. Sciences, Cambridge, UK, Jan. 20-24.	2003
Invited Speaker, Workshop on Optimization in Simulation Based Models, Jan. 9-16, IMA, Univ. of Minnesota.	2003
Invited Speaker, Int'l Conf. on Scientific Computing and PDEs (in honor of Stan Osher's 60th Birthday), <i>Wavelets and PDE Techniques for Image Compression</i> , Dec. 12-15, Baptist Univ., Hong Kong.	2002
Invited Lecture to High School students, Enrichment Programme for Young Mathematical Talents, Inst. of Math. Sci., Chinese Univ. of Hong Kong, <i>A Career in Math</i> , Nov 9.	2002
Distinguished Lecturer, United College, Chinese Univ. of Hong Kong, <i>Geometry, PDE, Fluid Dynamics and Image Processing</i> , Nov 5.	2002
Distinguished Lecturer, United College, Chinese Univ. of Hong Kong, <i>What's Math Got to Do With it? Mathematics at the frontier of Science and Technology</i> , Nov 7.	2002
Plenary Lecturer (delivered by co-author Prof. X.C. Tai, Univ. of Bergen, Norway, due to conflict with ICM), <i>TV-norm Regularization and Level-Set Methods for the Recovery of Discontinuous Coefficient in Elliptic Inverse Problems</i> , SFB Conf. on Computational Methods in Inverse Problems, Strobl, Austria, 25-31 August.	2002

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### Selected Invited Lectures

Description	Date(s)
Keynote Lecturer (other lecturers: S. Osher and H. Zhao) (5 hours of lectures), Beijing Int'l Conference Center, Graduate course on Image Processing, Aug 19-23. (Chinese Nat'l Sci. Foundation sponsored course open to all graduate students in China. About 50 participants.)	2002
Semi-plenary Lecturer, <i>Logical Models for Multi-channel Image Segmentation</i> , Foundation of Computational Math., Workshop on Image and Signal Processing, IMA, Univ. of Minnesota, 12-14 Aug., 2002.	2002
Keynote Lecture: "What has Math got to do with it: Mathematics at the frontier of Science and Technology", Research in Industry Program For Students Program Distinguished Lecture Series, Aug 12, IPAM, UCLA.	2002
Invited Minisymposium Lecture: "Active Contour and Segmentation Models Using Geometric PDEs for Medical Imaging", MS122, SIAM 50th National Meeting, Philadelphia, July 8-12.	2002
Invited Minisymposium Lecture: "Level Set Methods and Augmented Lagrangian for a Parameter Identification Problem", MS100, SIAM 50th National Meeting, Philadelphia, July 8-12.	2002
Invited Minisymposium Lecture: "Logical Operators for Active Contours on Multi-Channel Images", MS14, SIAM 50th National Meeting, Philadelphia, July 8-12.	2002
Presentation: "On Stewart's QLP Algorithm for Approximating the SVD", Householder Symposium, Peebles, Scotland, June 17-22.	2002
Invited Lecture: "On Stewart's QLP Algorithm for Approximating the SVD", Int'l Conference on Structured Matrices, The Chinese Univ. of Hong Kong and the University of Hong Kong, May 29 - June 1.	2002
Keynote Lecture: "Issues and Trends in Higher Education", Phi Tau Phi Scholastic Honor Society of America Spring Meeting, April 13, Caltech.	2002

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### Selected Invited Lectures

Description	Date(s)
Invited Lecture: "Variational Level Set Techniques for Mining Objects in Images", Workshop on Mathematical Challenges in Scientific Data Mining, IPAM, UCLA, Jan 14-18.	2002
Plenary Lecture: "Variational PDE Models and Algorithms for Image Processing", Int'l Congress of Chinese Mathematicians, Taipei, Dec 17-22.	2001
Invited Lecture: "A Level Set Algorithm for Minimizing the Mumford-Shah Functional in Image Processing", IEEE Workshop in Variation Level Set Methods in Computer Vision, in conjunction with the 8th Int'l Conf. in Computer Vision, Vancouver, Canada, July 13.	2001
Featured Presentation: "Physical Sciences in the California NanoSystems Institute", presented to Donald Tsang, Chief Secretary of Administration, Hong Kong SAR, during his visit to UCLA, September 7.	2001
Plenary Lecture: "Image Inpainting", Int'l Symposium on Computational and Applied PDEs, Zhangjiajie, Hunan, China, July 1-7.	2001
Plenary Lecture: "Image Inpainting", Applied Inverse Problems, Montecatini Terme, Italy, June 18-22.	2001
Invited Lecture: "Fast Solution of Nonlinear PDEs Arising from Image Processing", Oberwolfach, Germany, May 27 - June 1.	2001
Keynote Lecture: "What has Math got to do with it: Mathematics at the frontier of Science and Technology", Regents Scholar Society Meeting, Jan 17, IPAM, UCLA.	2001
Invited Lecture: "Active Contours and Mumford-Shah Segmentation Based on Level Sets", Workshop on Mathematics in Image Processing, Univ. of Hong Kong (Dec 13-17)	2000
Keynote Lecture: "What's Math got to do with it: mathematics at the frontier of science and technology", UCLA Parents Weekend, (Nov 17)	2000

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### Selected Invited Lectures

Description	Date(s)
Invited Lecture: "A Level Set Framework for Active Contours and Mumford-Shah Segmentation", IMA Workshop on Image Processing and Low Level Vision, (Oct 16-20)	2000
Invited Lecture: "A unified variational model for image restoration and inpainting", School on Mathematical Problems in Image Processing, Int'l Center for Theoretical Physics, (Sept 18-22)	2000
Invited Lecture: "ENO-Wavelets and Image Inpainting, ONR Workshop on Image Processing: Theory, Analysis, and Applications , Inst. for Pure and Applied Math, UCLA, (Sept 6-8)	2000
Semi-Plenary Lecture: "Linear and Nonlinear Algebra Problems Arising in PDE Imaging", 7th SIAM Conference on Applied Linear Algebra, North Carolina State University (Oct 23-26)	2000
Plenary Lecture: "From PDEs and CFD to Image Processing", International Conference on Scientific Computing, in honor of Prof. Feng Kang's 80th birthday, Beijing (Aug 29-31)	2000
Invited Millenium Colloquium: Ohio State University, "The Role of a Math Department in a Research University: The UCLA Example" (May 16)	2000
Invited Lecture, "Adaptive ENO-Wavelets for discontinuous functions with applications to image compression", MSRI, Mathematics in Imaging Workshop (Nov 1-5)	1999
Contributed Lecture, "Adaptive ENO-Wavelets transform for discontinuous functions", 12th Int'l conf. on Domain Decomposition Methods, Chiba Univ., Japan (Oct 25-29)	1999
Invited Plenary Lecture, "Detection of strong coupling in algebraic multigrid solvers", 6th European Multigrid Conf., Univ. Gent, Belgium (Sept 27-30)	1999

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### Selected Invited Lectures

Description	Date(s)
Invited lecture: "Active contours without edges for vector-valued images", Scale Space 99, Corfu, Greece (Sept)	1999
Invited Minisymposium Lecture, "Reduced Mumford-Shah models for image segmentation", The 4th Int'l Congress on Industrial & Applied Math (ICIAM), Edinburgh, Scotland (Jul 5-9)	1999
Speaker in Distinguished Lecture Series, "Nonlinear PDE methods in image processing", Univ. of British Columbia, CS Dept. Seminar Series, Vancouver, BC, Canada (Mar 4)	1999
Invited Plenary Lecture, "Variational PDE Models & Methods for Image Processing", 18th Biennial Conf. on Numerical Analysis, Univ. of Dundee, Scotland (Jun 29-Jul 2)	1999
Invited Lecture, "Agglomeration & Energy Minimizing Algebraic Multigrid", Scalable Linear Solvers Workshop, Livermore, CA (June 23-25)	1999
Invited Lecture, Oberwolfach, Germany (May 30-Jun 5)	1999
Invited Featured Lecture, "Mathematics & Entertainment", Entertech Workshop, Carlsbad, CA (Apr 25-27)	1999
Invited Lecture, "Multilevel algebraic elliptic solvers on unstructured grids", HPCN Europe 1999, Univ. van Amersterdam, Amsterdam, The Netherlands (Apr 12-14)	1999
Invited Lecture, "Multilevel elliptic solvers on unstructured grids", ASCI Tri Lab Meeting on Linear Solvers, Albuquerque, NM (Oct 13-14)	1998
Invited Plenary Lecture, "An energy-minimizing approach to robust multigrid methods", 10th Annual Int'l GAMM-Workshop on Multigrid Methods, Bonn, Germany (Oct 5-8)	1998

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### Selected Invited Lectures

Description	Date(s)
Honoree, Queen's College & King's College Joint Alumni Association, presented after-dinner talk: "Mathematics & You in the Next Century", Monterey Park, CA (Oct 31)	1998
Invited Plenary Lecture, "Nonlinear PDE methods in image processing", Int'l Congress on Numerical Methods for Partial Differential Equations, Marrakech, Morocco (Sept 14-18)	1998
Invited Plenary Lecture, "The View from UCLA", 13th Annual Mathematical Sciences Department Chairs' Colloquium, National Research Council, Washington, DC (Nov 13-14)	1998
Keynote Speaker, "Nonlinear PDE models in image processing", Computational Science and Engineering Program, Annual Research Symposium, Univ. of IL, Urbana-Champaign (Apr 17)	1998
Invited Minisymposium Lecture, "A modular solver for constrained regularization problems in image restoration", with P. Blomgren, SIAM Conf. on Linear Algebra, Snowbird, UT (Oct 29-Nov1)	1997
Invited Lecture (special session on PDEs and geometry-driven diffusion), "Total variation image restoration: numerical methods and extensions", Int'l Conf. on Image Processing, Santa Barbara, CA (Oct. 26-29)	1997
Invited Plenary Lecture, "Multilevel elliptic algorithms on unstructured grids", 10th Domain Decomposition Conference, Boulder, CO (Aug 10-4)	1997
Invited Minisymposium Lecture, "Extensions to total variation denoising", SPIE Meeting, San Diego, CA (July 28-Aug 1)	1997
Invited Minisymposium Lecture, "Total variation and beyond: PDEs in image processing", with P. Blomgren, SIAM Nat'l Meeting, Stanford, CA (July 14-18)	1997

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### Selected Invited Lectures

Description	Date(s)
Invited Minisymposium Lecture, "Augmented Lagrangian & total variation methods for recovery of discontinuous coefficients from elliptic equations", with X.C. Tai, SIAM Nat'l Meeting, Stanford, CA (July 14-18)	1997
Invited Lecture, "Algebraic nonoverlapping domain decomposition methods for compressible fluid flow problems in unstructured meshes", IMA Workshop on "Parallel Solution of PDE" (Jun 9-13)	1997
Invited Lecture, "ML(k)BiCGSTAB: A BiCGSTAB variant based on multiple lanczos starting vectors", Oberwolfach, Germany (Apr. 13-19)	1997
Invited Minisymposium Lecture, "Multilevel domain decomposition for unstructured meshes", with S. Go, SIAM Conf. on Linear Algebra, Snowbird, UT (Oct 29-Nov1)	1997
Invited Lecture, "Multigrid preconditioners for total variation image deblurring", Workshop on Scientific Computing '97 (WSC9-HK), Hong Kong (Mar 10-12)	1997
Invited Plenary Lecture, "Numerical linear algebra and optimization issues arising from total variation image restoration", Int'l Workshop on "Numerical Linear Algebra and Optimization", Curitiba, Brazil (Jan 15-18)	1997
Invited Lecture "Multilevel Algorithms for Elliptic Problems on Unstructured Grids", Workshop on Parallel Unstructured Grid Computations, Argonne National Lab (Sept 9-11)	1996
Invited Lecture and Main Organizer, ONR/UCLA Image Processing Workshop, UCLA (Sept 4-6)	1996
Invited Lecture, "Total variation Image Restoration", RIACS, NASA Ames, Code I/RIACS Workshop on "Basic Research Opportunities in Information Technology for NASA Applications" (July 29-30)	1996

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**Selected Invited Lectures**

Description	Date(s)
Plenary Lecture (45 min.), "Iterative Methods for Total Variation Image Processing", joint paper by Chan, Golub, Mulet, lecture presented by Mulet at the Householder Symposium (Jun 17-21)	1996
Invited Plenary Lecture: Workshop on Iter. Meth., CERFACS, France (June)	1996
Invited Plenary Lecture: Workshop on Sci. Comp, KTH, Stockholm (June)	1996
Invited Plenary Lecture: AMLI'96, Katholic University, Nijmegen, Netherlands (June)	1996
Invited plenary lecture: Winter School on Iter. Meth. and Applications, Hong Kong (Dec)	1995
Invited Plenary Lecture: 8th Int'l Conf. on Domain Decomposition, Beijing. (May)	1995
Winter School on Iter. Meth. and Applications, Hong Kong, with R. Chan and G. Golub (Dec)	1995
Invited Plenary Lecture: Conference on Sci. Comp., Hong Kong (May)	1995
Invited Plenary Lecture: IMACS Symp. on Iter. Meth., Blaevograd, Bulgaria (June)	1995
Invited Plenary Lecture: Workshop on Iter. Meth. for Large Scale Nonlinear Problems, Logan, Utah (Sept.)	1995
Invited Lecture: Oberwolfach, Germany. (April)	1994
Invited Plenary Lecture, 3rd Int'l Conf. on Advances in Numer. Meths. and Applic., Sofia, Bulgaria (Aug)	1994
Invited Lecture: PCG'94, Keio Univ., Japan. (March)	1994
Invited Lecture: Sparse Days at St. Gions, France. (July)	1994
Invited Lecture: ICASE short course on Parallel Numer. Alg. (May)	1994
Invited Lecturer: Int'l Workshop on Parallel and Supercomputing, Hsinchu, Taiwan	1993

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**Selected Invited Lectures**

Description	Date(s)
Invited Lecturer: IMACS Conference, Bangalore, India	1992
Conference Organizer & Speaker: 6th Int'l Conf. on Domain Decomposition, Lake Como, Italy.	1992
Invited Lecturer: Int'l Conference on Linear Algebra, Shanghai, China	1992
Invited Lecturer: Workshop on Recent Development in Numer. Meth. for Fluid Dynamics, Asilomar, CA. (Feb.)	1992
Invited Lecturer: ONR Workshop on Domain Specific Meth. for Massively Parallel Computational Sciences. (May)	1992
Invited Lecturer: Int'l Conference on Computational Engineering Science, Hong Kong	1992
Invited Lecture: Workshop on Iter. Meth. for Sparse and Structured Problems, IMA, Univ. of Minnesota	1992
Invited Lecture (1 hr), Le Breau Summer School, France	1992
Invited Lecturer: Minisymposium, SIAM Conf. Appl. Linear Algebra, Minnesota. (Sept.)	1991
Invited Lecturer: Mini-conference on Domain Decomposition, Univ. of Kentucky. (Nov.)	1991
Invited Lecturer: Workshop on Parallel Processing, Albuquerque, NM. (Nov.)	1991
Professor and Main Lecturer, Summer school on Numerical Analysis, Le Breau, France	1991
Invited Talk: Dept. of Energy Conference on Nonlinear Science, Los Alamos. (May)	1991
Invited Talk: Workshop on Parallel Computing, STU, Sweden. (April)	1991
Invited Talk: Oberwolfach, Germany. (April)	1991
Invited Talk: Parallel Circus, UCSB. (March)	1991
Invited Talk: Workshop on Parallel Computing on the Connection Machine, UCLA. (April)	1990

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**Selected Invited Lectures**

Description	Date(s)
Invited Talk: Oberwolfach, Germany. (April)	1990
Invited Talk: ACM Int'l Conference on Supercomputing, Amsterdam. (June)	1990
Invited Talk: Householder Conference, Tylosand, Sweden. (June)	1990
Invited Talk: Fourth Institute for Super Computing Research Workshop, Hakone, Japan. (Aug.)	1990
Lecture, Short Course on CFD: Theory and Application in Computer Codes, CERFACS. Toulouse, France. (Nov.)	1990
Invited Talk: SIAM Conference on Linear Algebra and Signal Processing, Minisymposium, San Francisco. (Nov.)	1990
Invited Talk: Parallel Circus, Stanford Univ. (March)	1990
Invited Talk: Conference on Scientific Computing, Univ. of Hong Kong. (Dec.)	1990
Invited Talk: Copper Mountain Conference on Iterative Methods. (April)	1990
Plenary Speaker at SIAM National Meeting: Domain Decomposition Algorithms, San Diego. (July)	1989
Invited Talk: MAA-SIAM Joint Meeting: Domain Decomposition Methods for PDE's, CalState Fullerton. (March)	1989
Invited Talk: SIAM Conference on Sparse Matrices, Glenden Beach, Oregon. (May)	1989
Invited Talk: Workshop on Numerical Linear Algebra, Trondheim, Norway. (June)	1989
Invited Talk: Workshop on Advances in Scientific Computing, Espoo, Finland. (Aug.)	1989
Two week lecture course at the National Tsing Hua Univ. Taiwan. (Dec.)	1989

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**Selected Invited Lectures**

Description	Date(s)
Invited Speaker: Workshop on Practical Iterative Methods for Very Large-Scale Computations, Univ. of Minnesota. (Oct.)	1988
AMS-SIAM Summer Seminar: "Computational Solution of Nonlinear System of Equation", Colorado State Univ. (July)(Unable to attend)	1988
Invited Speaker: Symposium on Trends in High Performance Computing in Science and Engineering, Linkoping Univ. Sweden.	1988
Invited Speaker: 2nd Int'l Conference on Vector and Parallel Computing Issues in Applied Research and Development, Tromso, Norway. (June)	1988
Invited Speaker: Joint NSF/IBM Almaden Research Center Workshop on Opportunities and Constraints of Parallel Computing, San Jose. (Dec.)	1988
Invited Speaker: Conference on Supercomputer Applications of Sparse Matrix Algorithms, Santa Cruz. (March)	1988
Invited Speaker: 2nd Int'l Symposium on Domain Decomposition Methods, UCLA. (Jan.)	1988
Invited Talk: "Numerical Linear Algebra and Parallel Computation," Oberwolfach. (March)	1988
Invited Speaker: 3rd Copper Mountain Conference on Multigrid Methods, Co. (April)	1987
Invited Speaker: Symposium on Parallel Computations and Their Impact on Mechanics, Amer. Soc. Mech. Engineers, Boston, Mass. (Dec.)	1987
Invited Speaker: Conference on Computational Fluid Dynamics, Amer. Phys. Soc., Eugene, Oregon. (Nov.)(Unable to Attend)	1987
Invited Speaker: ASU Computational Math. Research Conference, Arizona State Univ. (Nov.)	1987

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**Selected Invited Lectures**

Description	Date(s)
Invited Speaker: 1st Int'l Conference on Industrial And Applied Math. Paris, France. (June)	1987
Invited Speaker: IMACS Conference with D. Resasco, Lehigh Univ. (June)	1987
Invited Speaker: Workshop for Fast Fourier Transforms for Vector and Parallel Computers, Cornell Univ. (March)	1987
Invited Speaker: 1st Int'l Symposium on Domain Decomposition Methods for PDEs, Paris, France. (Jan.)	1987