

Curriculum Vitae

Vittorio Cristini, Ph.D.,

Fellow of the American Academy of Nanomedicine (F.A.A.N.)

Vittorio Cristini, PhD, FAAN

Associate Professor

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EDUCATION

Ph.D. Chemical Engineering 2000, Yale U.; thesis title: “Drop dynamics in viscous flow”

M. Phil. Chemical Engineering 1998, Yale U.

M. S. Chemical Engineering 1996, Yale U.

Laurea Summa-Cum-Laude Nuclear Engineering 1994, U. of Rome “La Sapienza”

APPOINTMENTS AND PROFESSIONAL ORGANIZATION SERVICE

CURRENT POSITIONS:

Associate Professor, School of Health Information Sciences, U. of Texas Health Sciences Center, Houston (UTHSC-H), Dec. 2006-present

Associate Professor, Dept of Systems Biology, Division of Cancer Medicine, U. of Texas MD Anderson Cancer Center, Houston, 07-pres

Associate Professor, Department of Biomedical Engineering, U. of Texas at Austin, Nov. 2007-present

Associate Professor, Department of Biomedical Engineering, U. of Texas Health Sciences Center, Houston, Dec. 2006-present

Chair of excellence in Neuro-Oncology, Auvergne University, Clermont-Ferrand, France 2009-2010

President and Co-Founder, InSilico Therapies Corp.

UTHSC-H Director, multi-institutional Center for Mathematical Biosciences, 2008—present

Founding Member, International Academy of Nanomedicine (IANM)

PAST POSITIONS:

Assistant Professor, Department of Biomedical Engineering, U. C. Irvine, Sept. 2002-Dec 2006

Assistant Professor, Dept of Mathematics, U. C. Irvine, 2003-Dec. 2006

Associate Professor, Department of Mathematics, U. C. Irvine, 06-07

Visiting Assistant Professor of Chemical Engineering, U. of Naples, Italy, Aug.-Sept. 2005

Visiting Assistant Professor, School of Mathematics, U. of Minnesota, 2002

Postdoctoral Associate, Chemical Engineering and Materials Science, U. of Minnesota, 2000-2002

Postdoctoral Associate, Institute for Mathematics and its Applications, U. of Minnesota, 2001-2002

Board of Directors, International Brain Mapping and Intra-operative Surgical Planning Society, 2004-2007

Chief Financial Officer, International Brain Mapping and Intra-operative Surgical Planning Foundation, 2006-2007

Scientific Advisory Board, Centre for Molecular (Bio)Medicine, Trieste, Italy, 2005-2007

Fluids Programming Committee Member, American Institute of Chemical Engineers (AIChE), 2004-2007

President and Co-Founder, Advanced Biomed Technologies, LLC 2005-2007

Member and Co-Founder, Mathematical and Computational Biology Graduate Program, UC Irvine, 2003-2006.

Mentor Faculty, National Inst of Health-National Inst of Dental and Craniofacial Res, T32 Training Grant, Univ/Minnesota 02.

EDITORIAL WORK

J of Serbian Society for Computational Mechanics, 2007-present. **NeuroImage** (Elsevier), 2006-2007. Open Biomedical Engineering Journ (Bentham Science), 2007-present. **Biomedical Microdevices** (Springer), 2004-present. J. of Biomedical Nanotechnology (American Scientific Publishers), 2004-present

AWARDS, HONORS AND CITATIONS (chronological)

2008 STEP-UP Clinical and Research Internship Award for Research Excellence—MD Anderson Cancer Center (Undergraduate student: Deepa Raghunathan)

Featured in the Forbes magazine (“Can Mathematics Cure Cancer?” 27 October, 2008)

Video exhibit of Cristini’s group cancer simulations in the Boston Museum of Science, 2008

Front cover of Journal of Mathematical Biology 2008

Front cover of Bulletin of Mathematical Biology 2006-2008

Featured in the Cancer Bulletin of the National Cancer Institute (“The mathematics of cancer”, Cancer Bulletin July 10, 2007 • Vol 4 / Number 21)

Fellow, American Academy of Nanomedicine, 2006-present

New Hot Paper in the field of Mathematics, Jul 06, Thomson-Scientific Essential Sci. Indicators (Bull Math Biol 2005;67(2):211-59)

Cancer Research Highlights, Feb 1 06: “Simulation model predicts tumor invasion in marginal environmental conditions.” (Cancer Res 2006;66(3):1597-604)

UNCF-MERCK Graduate Science Research Dissertation Fellowship, 2006-2008 (Student: N DeMagalhaes).

NIH Graduate Fellowship, 2006-2008 (Student: N DeMagalhaes).

Physical Sciences Faculty Endowed Award, U.C. Irvine, 2003-4 (Student: X. Zheng,)

B. S. Honors Thesis, U. of Minnesota 2004 (Student: A. Anderson)

Biomedical Engineer of the year, HSSoE School of Engineering, UC Irvine 2006 (Student: K. Velasco)

Research Scholarship, Minnesota Supercomput Inst, U. of Minnesota 01

Andreas Acrivos Dissertation Award in Fluid Dynamics, American Physical Society —Division of Fluid Dynamics 2000, “For important theoretical and numerical contributions to the description and understanding of drop dynamics and breakup in laminar and turbulent flows”

Henry Prentiss Becton Dissertation Award, Yale 2000, “For exceptional achievements in the field of Engineering and Appl. Sci.”

Outstanding Paper Award, American Insti of Chem Eng 1997

Harold Cheel Fund Graduate Fellowship, Yale U. 1995

TRAINEES GRADUATED AND POSTDOCS (alphabetic)

Anthony Anderson, **B.S.** Chemical Eng and Materials Science, U. of Minnesota 2004 – Honors Thesis.

Kaveh Azartash, **M.S.** Biomedical Engineering, U.C. Irvine, 2006

Yao-Li Chuang, **Postdoc**, School of Health Information Sciences, The University of Texas Health Science Center, 2007-present

Nzola DeMagalhaes, **Ph.D.** Biomedical Eng, U.C. Irvine 08 (expected) — UNCF-MERCK Grad Sci Res Dissert Fell –NIH graduate Dissert Fell

Hermann Frieboes, **Ph.D.** Biomed Eng, U.C. Irvine 06 (also: **postdoc**, 06-present)

Ryan Hainley, **M.S.** Biomedical Engineering, U.C. Irvine 2005

Fang Jin, **Postdoc**, School of Health Information Sciences, The University of Texas Health Science Center, 2008-present

Srimahita Kaliki, **Ph.D.** student, Biomed Eng, U.T. Austin

Jahun Kim, **Ph.D.** Student, School of Health Information Sciences, The University of Texas Health Science Center, 2007-present

Shuwang Li, **Ph.D.** Aerospace Engineering and Mechanics, U. of Minnesota 2005 (not primary advisor)

Xiangrong Li, **Ph.D.** Applied Mathematics, U.C. Irvine, 2008 (not primary advisor)

Paul Macklin, **Visiting Assistant Professor**, School of Health Information Sciences, The University of Texas Health Science Center, 2007-present (also: **Ph.D.** Applied Mathematics, U.C. Irvine, 2006 – not primary PhD adv)

Lan Pham, **Postdoc**, Applied Mathematics, U.C. Irvine, 03-05

Deepa Raghunathan, **B.S.** MD Anderson Cancer Center (2008 STEP-UP Clinical and Research Internship Award for Research Excellence) (not primary advisor)

Sandeep Sanga, **Ph.D.** Biomed Eng, U.T. Austin 2008 (expected)

John Sinek, **Ph.D.** Applied Mathematics, U.C. Irvine, 2005 (also: **postdoc**, 05-07).
Current position: senior scientist in Industry.

Balakrishnan Sivaraman, **M.S.** Chemical Engineering and Materials Science, U.C. Irvine 2005

Kristine Velasco, **B.S.** Biomedical Engineering, UC Irvine 2006 – BME Engineer of the Year

Steven Wise, **Postdoc**, Applied Mathematics, U.C. Irvine, 03-06. current position: assistant professor of Math in Kentucky

Xiaoming Zheng, **Ph.D.** Applied Math, U.C. I., 2005 – Physical Sciences Faculty Endowed Award, 2003-4 (also: **postdoc**, 2005-2006). Current position: visiting assistant professor of math in Michigan

RESEARCH FUNDING (chronologic)

NSF—Mathematical Sciences PI (6% time; 2008-2011), “Collaborative Research: Multiscale modeling of solid tumor growth,” \$226,000.

Cullen Trust for Health Care, PI (60% time; 2008-2010), ““Virtual cancer:” Reducing cancer recurrence and progression. New paradigms in cancer diagnostics and treatment through computational modeling of biological systems” (total budget \$1.5 million)

DoD—Telemedicine and Advanced Research Technology Center (**TATRC**) / Alliance for Nanohealth (**ANH**). PI (10% time; 2008-2010), “Optimizing Delivery of Paclitaxel in Head and Neck Cancer Treatment Through Nanoparticle Delivery and Interactive Biomathematically Based Nanoparticle Designs,” (Total Budget: \$45,000)

F. Symmans (PI, MDACC), **V. Cristini** (Collaborator, 0% effort). *Prospective Evaluation of Molecular Triaging with Pharmacogenomic Tests to Select Neoadjuvant Treatment*. Komen Foundation. 04/01/2008 – 03/31/2009. (\$45,000)

NIH Graduate Fellowship Mentor (2007-2009), \$60,000 (PI: Graduate Student N DeMagalhaes).

NIH—National Cancer Institute Co-PI (10% time; 2006-2009), “R01: Clinical and Microarray Data Predict Lung Cancer Outcomes”. (Total Budget: \$1 million)

NIH—BRP. Co-I (5% time; 2007-2011), “Nanovectors for characterization and destruction of breast tumor vasculature,” (total budget \$400,000)

DoD—Telemedicine and Advanced Research Technology Center (**TATRC**). Co-PI (5% time; 2007-2010), “Medical Nanovector Research and Development Center of Alliance for Nanohealth,” (Total Budget: \$1.768 Million)

DoD—U.S. Army Medical Research and Materiel Command (**USAMRMC**)—The Texas Training and Technology Against Trauma and Terrorism (T5) program NCE. Co-PI (38% time; 2007-2008) (total budget \$4,792,000)

Dekk-Tech. PI (2007), “Computer simulations of drug delivery to brain tumors,” (\$25,000)

United Negro College Fund—**MERCK** Graduate Science Research Dissertation Fellowship Mentor (2007-2009), “An integrated biological and computational tumor model,” \$52,000 (PI: Graduate Student N DeMagalhaes).

U.C. Discovery—**IT for life sciences/ORQIS Medical** PI (2005-2007), “Analysis and Optimization of Blood Circuit Components Using Adaptive CFD,” \$188,000.

NIH—National Cancer Institute Co-PI (2005-2006), “R01: Multidisciplinary studies of tumor vascularity and microenvironment,” \$180,000.

NSF—Mathematical Sciences PI (10% time; 2003-2006), “Collaborative Research: Analysis and properties of co-continuous blends-A numerical and experimental investigation,” \$132,000.

NSF—Materials MRSEC Program Co-PI (2003-2004), “Analysis and 3D simulations of quantum-dot formation on patterned substrates,” \$128,000.

ORQIS Medical PI (2004), “CFD analysis for the treatment of congestive heart failure,” \$4,000.

U. C. Irvine, Center for Complex Biological Systems Seed Grant PI (2003-2004), “Computational and Experimental Modeling of Tumor Spheroid Growth and Photodynamic Therapy: A First Step Towards an In Vivo Model,” \$11,000.

U. C. Irvine, Biomedical Engineering/College of Medicine Seed Grant PI (2003-2004), “Modeling breast tumor morphology to predict drug response,” \$15,000.

PEER-REVIEWED PUBLICATIONS (57 TOTAL)

CANCER AND NANOTECHNOLOGY

Journal Articles

J Sinek, S Sanga, X Zheng, M. Ferrari, V Cristini, Predicting drug PKPD and tumor response using computer simulations. *J of Mathematical Biology*. DOI 10.1007/s00285-008-0214-y; In press (invited) 2008.

P. Macklin, S. McDougall, A.R.A. Anderson, M.A.J. Chaplain, V. Cristini, J. Lowengrub, Multiscale modeling and nonlinear simulation of vascular tumour growth, *J. Math. Biol.*, DOI 10.1007/s00285-008-0216-9; 2008, in press.

V. Cristini, X. Li, J.S. Lowengrub, S.M. Wise, Nonlinear simulations of solid tumor growth using a mixture model: invasion and branching. *J of Mathematical Biology*. In press.

S M Wise, J Lowengrub, H B Frieboes, V Cristini, Three-dimensional multispecies nonlinear tumor growth--I Model and numerical method. *J Theor Biol*; 253(3):524-43.

H. Frieboes, J. Lowengrub, S. Wise, X Zheng, E Bearer, V. Cristini, Computer simulation of glioma growth and morphology. *NeuroImage*; 37, S 1, 2007, S59-S70.

X. Li, V. Cristini, Q. Nie, J. Lowengrub, Nonlinear three-dimensional simulation of solid tumor growth. *Discrete and Continuous Dynamical Systems B* 2007;7(3):581-604. (invited)

H. Frieboes, X. Zheng, C.-H. Sun, B. Tromberg, R. Gatenby, V. Cristini, An integrated computational/experimental model of tumor invasion¹. *Cancer Research* 2006;66(3):1597-604.

V. Cristini, H. Frieboes, R. Gatenby, S. Caserta, M. Ferrari, J. Sinek, Morphological instability and cancer invasion. *Clinical Cancer Research* 2005;11(19):6772-9.

X. Zheng, S. Wise, V. Cristini, Nonlinear simulation of tumor necrosis, neo-vascularization and tissue invasion via an adaptive finite-element/level-set method². *Bulletin of Math Biol* 2005;67(2):211-59.

J Sinek, H Frieboes, X Zheng, V Cristini, Two-dimensional chemotherapy simulations demonstrate fundamental transport and tumor response limitations involving nanoparticles. *Biomed Microdev* 2004;6(4):297-309 (invited).

V. Cristini, J. Lowengrub, Q. Nie, Nonlinear simulation of tumor growth. *J of Mathematical Biology* 2003;46(3):191-224.

Review Articles

S. Sanga, H Frieboes, X. Zheng, R. Gatenby, E. Bearer, V Cristini, Predictive oncology: a review of multidisciplinary, multiscale in-silico models connecting phenotype, morphology and growth . *NeuroImage*; 37, S 1, 2007, S120-S134

J-J Lemaire et al, Brain Mapping in Stereotactic Surgery: A Brief Overview From the Probabilistic Targeting To the Patient-Based Anatomic Mapping. *NeuroImage*; In press.

S. Sanga, J. Sinek, H. Frieboes, M. Ferrari, J. Fruehauf, V. Cristini, Mathematical modeling of cancer progression and response to chemotherapy: towards the development of a multiscale computer simulator. *Expert Review of Anticancer Therapy* 2006;6(10):1361-76. (invited)

S. J. Madsen, C.-H. Sun, B. J. Tromberg, V. Cristini, N. DeMagalhaes, H. Hirschberg, Multicell tumor spheroids in photodynamic therapy. *Lasers in Surgery and Medicine* 2006;38(5):555-64.

Book Chapters

H Frieboes, P Decuzzi, J Sinek, M Ferrari, V Cristini, Computational Modeling of Tumor Biobarriers: Implications for Delivery of Nano-based Therapeutics. In: Mingjun Zhang and Ning Xi (Eds.). *Nanomedicine: A Systems Engineering Approach*, Pan Stanford Publishing -- an affiliated company of the World Scientific Publishers, 2008. (invited)

V Cristini, HB Frieboes, X Li, JS Lowengrub, P Macklin, S Sanga, SM Wise, X Zheng. Nonlinear modeling and simulation of tumor growth. In: Selected topics in cancer modeling: Genesis, evolution, immune competition, and therapy. Modelling and

¹ Cancer Research Highlights, Feb 1 2006: "Simulation model predicts tumor invasion in marginal environmental conditions."

² New Hot Paper in the field of Mathematics, Jul 06, Thomson-Scientific Essential Sci. Indicators.

Simulation in Science, Engineering and Technology (Birkhauser, Boston), 2008, in press. Bellomo, Chaplain, de Angelis Eds. (invited).

S. Sanga, H. Frieboes, J. Sinek, V. Cristini, A multiscale approach for computational modeling of biobarriers to cancer chemotherapy via nanotechnology. In: Cancer Nanotechnology, eds: T. Webster, H. S. Nalwa; American Scientific Publishers 2006; Ch. 10, pp. 1-21 (invited).

J. Sinek, H. Frieboes, B. Sivaraman, S. Sanga, V. Cristini, Mathematical and computational modeling: Towards the development and application of nanodevices for drug delivery. In: Series: Nanotechnologies for the Life Sciences; Vol. 4: Nanodevices for the Life Sciences, ed: C Kumar; pp. 29-66; Wiley-VCH 2006 (invited).

H. Frieboes, J. Sinek, O. Nalcioglu, J. Fruehauf, V. Cristini, Nanotechnology in cancer drug therapy: a biocomputational approach. In: BioMEMS and Biomedical Nanotechnology 2006; Vol. 1: Prospectus, Biological and Biomedical Nanotechnology, eds: A.P. Lee, L.J. Lee; Springer-Verlag; Ch. 15, pp. 435-460 (invited).

BIOMEDICAL ENGINEERING (OTHER)

Journal Articles

J. C. Y. Dunn, W. Y. Chan, V. Cristini, J. S. Kim, J. Lowengrub, S. Singh, B. M. Wu, Analysis of cell growth in three-dimensional scaffolds. *Tissue Engineering* 2006;12(4):705-16.

Review Articles

V. Cristini, G. S. Kassab, Computer modeling of red blood cell rheology in the microcirculation: A brief overview. *Annals of Biomedical Engineering* 2005;33(12):1724-7 (invited).

MICROFLUIDICS

Journal Articles

V. Sibillo, G. Pasquariello, M. Simeone, V. Cristini, S. Guido, Drop deformation in microconfined shear flow. *Physical Review Letters* 2006; 97:054502.

Y.-C. Tan, J. S. Fisher, A. I. Lee, V. Cristini, A.P. Lee, Design of Microfluidic Channel Geometries for the Control of Droplet Volume, Chemical Concentration, and Sorting. *Lab on a Chip* 2004;4(4):292-8.

Y.-C. Tan, V. Cristini, A. P. Lee, Monodispersed microfluidic droplet generation by shear focusing microfluidic device. *Sensors & Actuators B: Chemical* 2006;114(1):350-6.

Review Articles

V. Cristini, Y.-C. Tan, Theory and numerical simulation of droplet dynamics in complex flows-A review. *Lab on a Chip* 2004;4(4):257-64 (invited).

COMPLEX FLUIDS

Journal Articles

- Young, Y-N; Blawdziewicz, J; Cristini, V; Goodman, R, Hysteretic and chaotic dynamics of viscous drops in creeping flows with rotation. *J of Fluid Mechanics* 2008;607:209-34.
- V. Cristini, J. Blawdziewicz, M. Loewenberg, L. Collins, Breakup in stochastic Stokes flows: sub-Kolmogorov drops in isotropic turbulence. *J. of Fluid Mechanics* 2003;492:231-50.
- V. Cristini, S. Guido, A. Alfani, J. Blawdziewicz, M. Loewenberg, Drop breakup and fragment size distribution in shear flow. *J. of Rheology* 2003;47(5):1283-98.
- J. Blawdziewicz, V. Cristini, M. Loewenberg, Multiple stationary states for deformable drops in linear Stokes flows. *Physics of Fluids* 2003;15(5):L37-40.
- P. Patel, E. Shaqfeh, J. E. Butler, V. Cristini, J. Blawdziewicz, M. Loewenberg, Drop breakup in the flow through fixed fiber beds: An experimental and computational investigation. *Physics of Fluids* 2003;15(5):1146-57.
- D. Khismatullin, Y. Renardy, V. Cristini, Inertia-induced breakup of highly viscous drops subjected to simple shear. *Physics of Fluids* 2003;15(5):1351-4.
- V. Cristini, R. Hooper, C.W. Macosko, M. Simeone, S. Guido, A numerical and experimental investigation of lamellar blend morphologies. *Industrial & Engineering Chemistry Research* 2002;41(25):6305-11.
- V. Cristini, C.W. Macosko, T. Jansseune, A note on transient stress calculation via numerical simulations. *J. of Non-Newtonian Fluid Mechanics* 2002;105(2-3):177-87.
- J. Blawdziewicz, V. Cristini, M. Loewenberg, Critical behavior of drops in linear flows: I. Phenomenological theory for drop dynamics near critical stationary states. *Physics of Fluids* 2002;14(8):2709-18.
- V. Cristini, Flow-independent drop deformation with zero surface tension. *Phys of Fluids* 2002;14(8):2929-32.
- Y. Renardy, V. Cristini, J. Li, Drop fragment distributions under shear with inertia. *International J. of Multiphase Flow* 2002;28(7):1125-47.
- Y.Y. Renardy, M. Renardy, V. Cristini, A new volume-of-fluid formulation for surfactants and simulations of drop deformation under shear at a low viscosity ratio. *European J. of Mechanics B/Fluids* 2002;21(1):49-59.
- Y.Y. Renardy, V. Cristini, Scalings for fragments produced from drop breakup in shear flow with inertia. *Physics of Fluids* 2001;13(8):2161-4.
- Y.Y. Renardy, V. Cristini, Effect of inertia on drop breakup under shear. *Physics of Fluids* 2001;13(1):7-13.

J. Blawdziewicz, V. Cristini, M. Loewenberg, Near-contact motion of surfactant-covered spherical drops: Ionic surfactants. *J. of Colloid and Interface Science* 1999;211(2):355-66.

J. Blawdziewicz, V. Cristini, M. Loewenberg, Stokes flow in the presence of a planar interface covered with incompressible surfactant. *Physics of Fluids* 1999;11(2):251-8.

V. Cristini, J. Blawdziewicz, M. Loewenberg, Near-contact motion of surfactant-covered spherical drops. *J. of Fluid Mechanics* 1998;366:259-87.

V. Cristini, J. Blawdziewicz, M. Loewenberg, Drop breakup in three-dimensional viscous flows. *Physics of Fluids* 1998;10(8):1781-3.

Review Articles

V. Cristini, Y. Renardy, Scalings for droplet sizes in shear-driven breakup: non-microfluidic ways to monodisperse emulsions. *Fluid Dynamics and Materials Processing* 2006;2(2):77-94 (invited).

GROWTH OF MICROSTRUCTURE

Journal Articles

S. Li, J. Lowengrub, P. Leo, V. Cristini, Nonlinear stability analysis of self-similar crystal growth: control of the Mullins-Sekerka Instability. *J. of Crystal Growth* 2005;277(1-4):578-92.

S. Li, P. Leo, J. Lowengrub, V. Cristini, Nonlinear theory of self-similar crystal growth and melting. *J. of Crystal Growth* 2004;267(3-4):703-13.

V. Cristini, J. Lowengrub, Three-dimensional crystal growth-II: Nonlinear simulation and control of the Mullins-Sekerka instability. *J. of Crystal Growth* 2004;266(4):552-67.

X. Li, J. Lowengrub, Q. Nie, V. Cristini, P. Leo, Microstructure evolution in three-dimensional inhomogeneous elastic media. *Metallurgical and Materials Transactions A* 2003;34A(7):1421-31.

V. Cristini, J. Lowengrub, Three-dimensional crystal growth-I: linear analysis and self-similar evolution. *J. of Crystal Growth* 2002;240(1-2):267-76.

NUMERICAL METHODS

Journal Articles

X. Yang, A. J. James, J. Lowengrub, X. Zheng, V. Cristini, An adaptive coupled level-set/volume-of-fluid interface capturing method for unstructured triangular grids. *J. of Computational Physics* 2006;217(2): 364-394.

F. Xie, P. Sheu, A. Lander, V. Cristini, Semantic Analysis and Synthesis of Complex Biological Systems. *International J. of Software Engineering and Knowledge Engineering* 2005;15(3):547-69.

A. Anderson, X. Zheng, V. Cristini, Adaptive unstructured volume remeshing-I: The method. *J. of Computational Physics* 2005;208(2):616-25.

X. Zheng, J. Lowengrub, A. Anderson, V. Cristini, Adaptive unstructured volume remeshing-II: Application to two- and three-dimensional level-set simulations of multiphase flow. *J. of Computational Phys* 2005;208(2):626-50.

V. Cristini, J. Blawdziewicz, M. Loewenberg, An adaptive mesh algorithm for evolving surfaces: simulations of drop breakup and coalescence. *J. of Computational Physics* 2001;168(2):445-63.

OTHER

Journal Articles

M. Ferrari, L. Anzidei, V. Cristini, G. Symbolotti, Impact of the passive stabilization system on the dynamic loads of the ITER first-wall/blanket during a plasma disruption event. *Fusion Eng and Design* 1995;27:507-14.

TEACHING (chronological)

Math modeling and computer simulation for Health Sciences (Health Information Sciences, UT Health Science Center, Houston; Biomedical Engineering, U.T. Austin, 2007, graduate)

Numerical Analysis (Health Information Sciences, UT Health Science Center, Houston; Biomedical Engineering, U.T. Austin, 2007, graduate)

Advanced Engineering Mathematics (Biomedical Engineering, U.T. Austin, 2007, graduate)

Applied Eng Math II—Numerical Analysis (Biomedical Engineering, U. C. Irvine, 2003-2006, graduate)

Bio-Mass transport (Biomedical Engineering, U. C. Irvine, 2004-2006, undergraduate)

Introduction to predictive oncology (Biomedical Engineering, U. C. Irvine, 2005-2006, graduate)

Math modeling and computer simulation of complex biol systems (Biomed Eng, U. C. I. 2003-4, graduate)

Intro to Math and Computational Biol (COSMOS Program Physical Sciences, U. C. I. 2004-5, high school)

Virtual Cancer: A Computer Model of Cancer Progression and Treatment (Eng, UCI 2003, Freshman Sem)

Calculus I (School of Mathematics, U. of Minnesota, 2002, undergraduate)

Transport Phenomena (Chemical Engineering and Materials Science, U. of Minnesota, 2000, undergraduate)

CONFERENCE ORGANIZATION ROLES (most relevant)

Session Chair, International Biofluid Mechanics Conference, Caltech 2003.

Program Committee Member, 4th IEEE Internat Symp on Bioinformatics and Bioeng, Taichung, Taiwan 2004.

Program Committee Member, Dynamics Days 2005, UC Irvine.

Session Chair, Dynamics Days 2005, UC Irvine.

Session Chair, Stability and Non-linear Hydrodynamics, Am Inst of Chem Engineers Annual Meeting 2005.

European Conference on Mathemat and Theoret Biol (ECMTB) 2005, editor of the conference proceedings

Program Committee Member, Internat Brain Mapping and Intra-operative Surgical Planning Symp 2005-7.

Session Chair, Internat Brain Mapping and Intra-operative Surgical Planning Symposium (USC) 2005-2006.

Program Committee Member, Inst for Pure and Applied Math, UCLA, Cells and Materials conf. 2006.

Session Chair, "Cells and Materials: At the Interface between Mathematics, Biology and Engineering," Microfluidics symposium, Institute for Pure and Applied Mathematics, UCLA 2006.

15th US National Congr Theoret Appl Mech (USNCTAM06), U of Colorado, Boulder 2006, Biomech of Tissues Mini-symposium

Joint EU & US Workshop on Virtual Tissues in RTP, NC Apr. 21-24, 2009. Focus: modeling tissue level outcomes from molecular and cellular scales.

INVITED LECTURES (alphabetic; most relevant)

9th US Ntnl Congr Comput Mech 07. Alliance for Nanohealth 07. **American Acad Nanomedicine** 06. AMO-Advanced Medical Optics 02. Asia University, Taiwan, 2007. Caltech, 2003. California State U, Northridge 04. "Federico II" Univ/Naples, IT 98, 00, 01, 05, 07. **Gordon Research Conference** on Theoretical Biology and Biomathematics, 2008. Harvard University 1998. Institute for Computational Engineering & Sciences (ICES), U.T. Austin 08. International Brain Mapping and Intraoperative Surgical Planning Society Annual Meeting 04, 05, 07. **MD Anderson Cancer Ctr Grand Rounds**, Houston 07. MD Anderson Cancer Ctr, Houston 07 (2 lectures), 08. Medtronic 2001, 2002. **National Cancer Institute** 2002. New Jersey Inst Tech, 2005. **NCI/EU 1st Transatlantic Workshop** on virtual tissues, 2009. **NCI/**

EU 1st Transatlantic Workshop on multiscale cancer modeling, Brussels 2008. Novartis Pharmaceuticals, 2000. Penn State University 1999. PPG Industries, 2000. Rice U—Keck Seminar Series, 07. Roche, 2007. Society of Mathematical Biology 2008. Stanford U 2004. Texas Tech 2000. Univ/Arizona 2004, 2005. UC Davis 02. UC Irvine 01-06. UC Irvine Symposium on Mathematical Systems Biology, 08. UCLA 03, 04, 06. UCLA/Cedars-Sinai 08. Univ/Compiegne, France 1999. Univ/Dundee, UK, 2006, 2008. Univ/Houston, 2008. Univ/Minnesota 98, 00-02, 04, 07. Univ/Nottingham, UK, 04. USC 04, 05. Univ/Texas, Austin 08. Univ/Texas, Houston 06. **Univ/Texas Health Science Center, Houston (UTHSC-H) 08, keynote lecture at “World’s Best: The Willerson Years” celebrating the progress of the of the UTHSC-H during the presidency of James T. Willerson, MD 2001-2008.** Univ/Texas, San Antonio 08. Vanderbilt University 2008. Virginia Tech 00. Yale University 98

FUNDING AGENCIES SERVICE

NIH review panel member 2008. multiscale modeling of physiome in health and disease

National Cancer Institute—The Ohio State University: workshop on “The role of biomedical informatics in overcoming current barriers in cancer research” 2008

National Cancer Institute meeting – “Integrating and Leveraging the Physical Sciences to Open a New Frontier in Oncology” 2008

Reviewer, U.S. - Israel Binational Science Foundation 2008

Reviewer, American Chemical Society, 2007

Reviewer, WWTF Vienna Science and Technology Fund 07. Progr: Mathematics and Cancer Nanotechnology

Reviewer, Dept of Energy-Office of Science 03. Progr: Innovative and Novel Computational Impact on Theory and Experiments.

Reviewer, Department of Energy-Office of Science, 2005. Program: Basic Energy Sciences.

Reviewer, National Science Foundation-Division of Mathematical Sciences, 2005.

Panel member, Telemedicine and Advanced Technology Research Command (TATRC)/American Institute of Biological Sciences (AIBS) panel to conduct independent scientific review to the Alliance for NanoHealth (ANH) program. Houston, TX 06.

Reviewer, Medical Research Council, UK

