

Mauro Ferrari, PhD

The University of Texas Health Science Center at Houston

EDUCATION

1985	Universita' di Padova, Padova, Italy	Dottore in Matematica
1987	University of California, Berkeley	MS (Mechanical Engineering)
1989	University of California, Berkeley	PhD (Mechanical Engineering)
2002 – 2004	Ohio State University, Columbus	Medical student

CURRENT PROFESSIONAL APPOINTMENTS

University of Texas Health Science Center at Houston

Feb 2006	– present	Professor (tenured), Internal Medicine (Division of Cardiology, School of Medicine)
Feb 2006	– present	Professor, Graduate School of Biomedical Sciences
Feb 2006	– present	Adjunct Professor, School of Health Information Sciences
Sep 2006	– present	Deputy Chairman (UT-HSC H), UT Department of Biomedical Engineering*
Aug 2008	– present	Professor and Division Head, Division of Nanomedicine (UT Department of Biomedical Engineering*)
Sep 2009	– present	Professor and Chair, Department of Nanomedicine and Biomedical Engineering

* The UT Department of Biomedical Engineering is a multi-institutional department serving UT Austin, UT Health Science Center at Houston, and UT M.D. Anderson Cancer Center.

University of Texas M.D. Anderson Cancer Center, Houston,

Feb 2006	– present	Professor (tenured), Experimental Therapeutics
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Rice University, Houston, Texas

Feb 2006	– present	Adjunct Professor, Department of Bioengineering
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Alliance for NanoHealth

April 2006	– present	President and ANH Investigator †
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† The Alliance for NanoHealth is a multi-disciplinary, multi-institutional research consortium of Baylor College of Medicine, UT M.D. Anderson Cancer Center, Rice University, University of Houston, UT Health Science Center at Houston, Texas A&M Health Science Center (Houston), University of Texas Medical Branch (Galveston), and Methodist Hospital Research Institute.

Affiliated Faculty Positions

University of Texas, Austin

2007	– present	Adjoint Professor, College of Engineering
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Baylor College of Medicine

2007	– present	Affiliated Faculty, Structural and Computational Biology and Molecular Biophysics Graduate Program
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University of Houston

2008	– present	Adjunct Professor, Biomedical Engineering Program, Cullen College of Engineering
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TABLE OF CONTENTS

Previous Professional Appointments	3
Research Interests	4
Academic and Professional Awards and Honors	4
Additional Awards and Honors.....	4
Research Funding	
Current	5
Pending	6
Completed.....	9
Refereed Publications	
Journal articles	11
Essays, editorials, commentary, letters	18
Proceedings and book chapters.....	19
Books	24
Reports	24
Keynote Lectures and Other Invited Presentations.....	25
Other Presentations	28
Patents	
Granted.....	29
Pending	30
Filed	30
Abandoned/withdrawn.....	32
Editorial Activities	32
Professional Memberships	
Current	33
Previous	34
Other Professional Service.....	34
International Service	34
Federal and National Service	35
State Service.....	37
Teaching:	
Current	38
Previous.....	39

PREVIOUS PROFESSIONAL APPOINTMENTS**University of Texas Health Science Center at Houston**

Feb 2006 – July 2008 Professor and Division Head, Division of Nanomedicine
(Institute of Molecular Medicine)

Feb 2006 – July 2008 Professor, Brown Foundation Institute of Molecular Medicine for the
Prevention of Human Diseases

University of Texas Medical Branch, Galveston

Feb 2006 – July 2008 Adjunct Professor, Department of Biochemistry and Molecular Biology

National Cancer Institute, Bethesda, Maryland

2003 – 2006 Eminent Scholar and Special Expert on Nanotechnology
[to establish the NCI Alliance for Nanotechnology in Cancer; nano.cancer.gov]
(50% time 2003 – 2004; 70% time 2004 – 2005; concurrent full faculty status at O.S.U.)

- o Cancer Nanotechnology Plan
- o Cancer Nanotechnology Symposia
- o Nanotechnology Standardization Laboratory (Frederick, MD)
- o Cancer Nanotechnology Extramural Working Group, Intramural Working Group

Ohio State University, Columbus, Ohio

1996 – 2006 Professor, Biomedical Engineering
1999 – 2002 Director, Biomedical Engineering Center
1999 – 2006 Professor, Internal Medicine
1999 – 2006 Professor, Mechanical Engineering
2000 – 2006 Member, Immunology Group, Comprehensive Cancer Center
2000 – 2006 Associate Director, Dorothy M. Davis Heart and Lung Research Institute
2000 – 2006 Professor, Materials Science and Engineering
2001 – 2006 Edgar Hendrickson Designated Chair in Biomedical Engineering
2002 – 2006 Scientific founder and scientific advisor, the Ohio MicroMD Lab
2002 – 2006 Associate Vice President for Health Science Technology and Commercialization

University of California, Berkeley

1991 – 1996 Assistant Professor, Materials Science and Engineering
1991 – 1996 Assistant Professor, Civil Engineering
1994 – 1998 Faculty, Bioengineering Program, UC San Francisco/Berkeley
1995 – 1998 Faculty, Applied Science and Technology Program
1996 – 1998 Associate Professor (with tenure), Materials Science and Engineering
1996 – 1998 Associate Professor (with tenure), Civil and Environmental Engineering
1996 – 1998 Faculty, Biophysics Program
1996 – 1998 Director, Biomedical Microdevices Center

University of Udine, Udine, Italy

1988 – 1990 Assistant Professor (Ricercatore), Theoretical and Applied Mechanics

Visiting Professorships

1998 (summer) Visiting Research Scientist, Lawrence Livermore National Laboratory, California, US
(Microtechnology Center)

2002 Scuola Superiore Sant' Anna, Pisa, Italy (Biomedical Engineering)

2002 Politecnico di Torino, Italy (Nanotechnology)

2003 University of Udine, Italy (Clinical Methodologies)

RESEARCH INTERESTS

- o Biomedical nano- and microtechnology (BioMEMS)
 - Medical applications to drug delivery, proteomics and peptidomics, cell transplantation, regenerative medicine and tissue engineering in oncology, traumatic injury, cardiovascular disease, infectious pathologies, and diabetes.
- o Biosensors and bioseparation technology
- o Multiscale discrete/continuum mechanics and biomechanics
- o Bioethics
- o Fracture and failure mechanics
- o Mechanics of composite materials and structures
- o Eigen-elasticity
- o Homogenization theory
- o Functionally graded biomaterials

ACADEMIC AND PROFESSIONAL AWARDS AND HONORS (selected)

- 1993 – 1998 National Science Foundation Young Investigator Award
- 1999 – 2000 National Institutes of Health, James A. Shannon Director's Award
- 1999 Wallace H. Coulter Award for Innovation and Entrepreneurship
- 2003 Ministry of Foreign Affairs, Italy: Italiani Nel Mondo Award / Mirko Trenaglia Award
- 2006 State of Texas Emerging Technology Fund, Research Superiority Award
- 2008 Fellow, American Institute for Medical and Biological Engineering
- 2009 – 2014 Department of Defense Innovator Award, Congressional Designated Medical Research Program, Breast Cancer Research Program
- 2009 – Corresponding Member, Accademia Udinese di Scienze, Lettere, ed Arti
- 2009 Robert and Virginia Heinlein Prize Trust, Microgravity Research Competition: Decoupling Diffusive Transport Phenomena in Microgravity. (PI)
- 2010 Special Achievement Award in Nanotechnology, Houston Technology Center, Texas. To be presented 2010 May 13.

ADDITIONAL AWARDS AND HONORS (selected)

- 1999, 2003 Presidential (Italy) recognition, leading Italian scientist
- 2001 Greater Columbus Chamber of Commerce: Ambassador Award
- 2002 Ohio Academy of Science, Frontiers of Science All-Academy Lecture (Capital University, Columbus, OH)
- 2007 Knight of the Order of Merit of the Italian Republic
- 2007 – present Aspen Institute, invited member
- 2008 St. George Award, Kraguyevac, Serbia
- 2009 Friulano della Diaspora Premio (Friuli [Italy] Diaspora Award)
- 2009 Green Endowed Engineering Lecture Series, Texas Christian University, Ft. Worth, TX

CURRENT RESEARCH FUNDING: (total costs)

- 2006 – 2010 Nanotechnology for Space Medicine.
NASA Johnson Space Center NSPIRES NNJ06HE06A. 2006 Sept 1 – 2010 Aug 31
Principal Investigator (\$3,695,927)
- 2006 – 2010 Acquisition of Scientific Superiority in Biomedical Nanotechnology.
State of Texas Governor's Office, Emerging Technology Fund. 2006 Jun 1 – 2010 Sep 30
Principal Investigator (\$2,500,000)
- 2006 – 2010 Start-up Fund.
University of Texas Health Science Center at Houston.
Principal Investigator (\$2,500,000)
- 2007 – 2010 The Medical Nanovector Research and Development Center of the Alliance for
NanoHealth.
Department of Defense, TATRC. W81XWH-07-2-0101.
2007 Sep 1 – 2009 Aug 19; Principal Investigator (\$1,768,000)
continuation 2008 Aug 20 – 2010 Aug 19; Principal Investigator (\$934,000)
- 2007 – 2010 Nanovectors for Targeting and Delivery of Therapeutics to HER-2 neu Positive Breast
Cancer Cells.
Department of Defense. MPA2. W81XWH-07-1-0596. 2007 Sep 15 – 2010 Oct 14.
(PI: R Serda, postdoctoral fellow) PI mentor. (\$658,440)
- 2007 – 2010 Nano-Scale Light Emitting Diode on Silicon Cantilever for Sub-Diffraction-Limit Near-
Field Microscopy of Single Molecules on Living Cells.
National Science Foundation. NSF/ECCS-0725886. 2007 Oct 1 – 2010 Sep 30.
(PI: X Zhang) Co-Principal Investigator. (\$54,899)
- 2008 – 2010 Development of Nanochannel Delivery System.
NanoMedical Systems, Inc. Sponsored Research Agreement. 2008 Mar 01 – 2010 Feb 28.
Principal Investigator. (\$416,408)
- 2008 – 2010 Alliance for NanoHealth (ANH) Training Program
for the development of future generations of interdisciplinary scientists and collaborative
research focused upon the advancement of nanomedicine; administrative core cost only.
Department of Energy. 2008 Sep 01 – 2010 Aug 31.
Principal Investigator (\$717,000)
- 2008 – 2010 MRI Consortium Proposal: Acquisition of a Dual-Beam Focused Ion Beam System to
Support Basic Device and Materials Research in the Greater Houston Area
NSF/OIS-0821454. 2008 Sep 1 – 2010 Aug 31.
(PI: D Litvinov) Co-Principal Investigator (\$380,000) (no salary support)
- 2008 – 2010 Alliance for NanoHealth (ANH) Training Program for Space Nanomedicine;
administrative core cost only.
NASA. 2008 Sep 1 – 2010 Aug 31.
Principal Investigator (\$813,490)
- 2009 – 2010 BioNanoScaffolds (BNS) for Post-Traumatic Osteoregeneration.
Department of Defense, DARPA. W911NF-09-1-0044. 2009 Jan 01 – 2010 Dec 31.
Principal Investigator (\$7,865,017)

Current Research Funding, cont.

- 2009 – 2010 Safety of Nano-Engineered Materials.
Food and Drug Administration (contracting in process). RFQ 1048351-1. 2009 Mar 1 – 2010 Feb 28.
Principal Investigator (\$99,999)
- 2007 – 2011 Nanovectors for Characterization and Destruction of Breast Tumor Vasculature.
NIH (BRP) 1R01CA128797. 2007 Sept 28 – 2011 Jul 31.
Principal Investigator (\$1,629,045)
- 2008 – 2011 Nanoparticles for Harvesting and Targeting Angiogenic Proteins.
NIH R33 CA 122864. 2008 Sep 1 – 2011 Aug 31.
Principal Investigator (\$1,119,375)
- 2009 – 2011 Subcellular Localization of Nanoparticles.
NIH/RC2 Grant 10331628; RFA OD-09-004 2009 Oct 1 – 2011 Sep 30.
Principal Investigator (\$3,349,551)
- 2008 – 2011 Development of Multi-Stage Silicon Nanoparticles to Prevent Placental Passage of Indomethacin.
NIH/K12 (Refuerzo). 2008 Jul 1 – 2011 Jun 30.
PI Mentor (\$351,820)
- 2009 – 2014 Towards Individualized Breast Cancer Therapy: Leveraging Molecular Medicine with Multi-Stage Vector Technology.
Department of Defense, Congressionally Directed Medical Research Programs (CDMRP) Breast Cancer Research Program (BCRP) Innovator.
DOD/BCRP W81XWH-09-1-0212. 2009 Mar 01 – 2014 Feb 28.
Principal Investigator (\$7,014,069)

PENDING RESEARCH FUNDING (as of 2009 June 1)

- 2009 – 2010 Inveon Multimodality System- Micro PET/CT/SPECT
NIH/S10 GRANT10307441; PAR-09-118 (Ferrari) 2009 Dec 01 – 2010 Nov 30
Principal Investigator (\$1,858,699)
- 2009 – 2010 Nanovectors for Characterization and Destruction of Breast Tumor Vasculature—
Administrative Supplement.
NIH NOT-OD-09-056. 2009 Sep 30 – 2010 Sep 29.
For CytoViva Hypersectral Imaging System.
Principal Investigator (\$99,940)
- 2009 – 2010 Nanoparticles for Harvesting and Targeting Angiogenic Proteins—Administrative
Supplement.
NIH NOT-OD-09-056. 2009 Sep 30 – 2010 Sep 29.
For Millipore Guava EasyCyte flow cytometer and ThermoScientific NanoDrop 3300
micro-volume spectroscopy system.
Principal Investigator (\$75,563)

Pending Research Funding, cont.

- 2009 – 2011 Nested Nanoparticles: Enhancing Synergy and Engabling Personalized Chemotherapy
NIH/1RC1CA144701-01; RFA-OD-09-003 (Ferrari) 2009 Sep 30 – 2011 Sep 29
Principal Investigator (\$999,929)
- 2009 – 2011 Non-invasive, molecular-specific optical theranostics for colorectal cancer
NIH/1RC1CA144457-01; RFA-OD-09-003 (Ferrari) 2009 Sep 30 – 2011 Sep 29
Principal Investigator (\$998,869)
- 2009 – 2011 Proteomic and Tumor Infiltrating Immune Cell Markers of Cancer Response to Thermochemotherapy: An Early Clinical Trial Translated from a Curative Pre-clinical Regimen.
NIH/RC2 RFA OD-09-004 (Bull) 2009 Sep 30 – 2011 Sep 29
Collaborator (\$2,981,849)
- 2009 – 2011 Research Core Center in Cancer Nanotechnology
NIH/P30 RFA-OD-09-005 (Ferrari) 2009 Sep 30 – 2011 Sep 29
To fund three assistant professors in the proposed Research Core Center in Cancer Nanotechnology
Principal Investigator (\$1,472,829)
- 2009 – 2011 Zero-ordered drug release modulated using biofeedback powered and controlled Rf coupling
NIH/1RC1EB010517-01; RFA-OD-09-003 (Ferrari) 2009 Sep 30 – 2011 Sep 29
Principal Investigator (\$999,188)
- 2009 – 2011 Subcellular Localization of Nanoparticles
NIH/RC2 Grant 10331628; RFA OD-09-004 (Ferrari) 2009 Oct 1 – 2011 Sep 30
Principal Investigator (\$3,349,551)
- 2009 – 2011 Rationally Designed Nano-particle Systems for the Imaging, Magnetic Ablation and Chemotherapy of Metastatic Ovarian Cancer
NIH/RC2 Grant 10331671; RFA OD-09-004 (Decuzzi) 2009 Oct 1 – 2011 Sep 30
Co-Investigator (\$1,965,057)
- 2009 – 2011 Targeted multi-stage bio-inorganic nanoscaffolds: Diagnostic and therapeutic applications in oncology
NIH/1RC1CA145017-01; RFA-OD-09-003 (Ferrari, Pasqualini, Arap)
2009 Oct 01 – 2011 Sep 30
Principal Investigator (\$999,787)
- 2009 – 2011 Engineered nano-release to leverage cancer therapy
NIH/1RC1CA144788-01; RFA-OD-09-003 (Ferrari) 2009 Sep 30 – 2011 Sep 29
Principal Investigator (\$997,219)
- 2009 – 2011 Integrated multifunctional proteomic nanochips for harvesting early stage cancer biomarker
NIH/GRANT10276240; RFA-OD-09-003 (Ferrari) 2009 Sep 30 – 2011 Sep 29
Principal Investigator (\$996,905)
- 2009 – 2011 Nano system for sustained in vivo siRNA delivery for ovarian cancer treatment
NIH/1RC1CA144940-01; RFA-OD-09-003 (Ferrari, Sood, Lopez-Berestein)
2009 Oct 01 – 2011 Sep 30
Principal Investigator (\$998,082)
- 2009 – 2011 Targeting Kupffer cells of the liver by multi-stage delivery system: Theranostic application in colorectal and pancreatic tumors with liver metastasis

Pending Research Funding, cont.

- NIH/1RC1CA146281-01; RFA-OD-09-003 (Ferrari, Fidler) 2009 Oct 01 – 2011 Sep 30
Principal Investigator (\$999,777)
- 2009 – 2011 Magnetic nano-particulate systems for imaging and non-invasive hyperthermia in cancer treatment
NIH/GRANT10267311; RFA-OD-09-003 (Decuzzi, Wilson) 2009 Sep 30 – 2011 Sep 29
Co-Investigator (\$996,482)
- 2009 – 2011 An integrated framework for the rational design of nano-particle systems for biomedical imaging and therapy
NIH/GRANT10266808; RFA-OD-09-003 (Decuzzi) 2009 Sep 30 – 2011 Sep 29
Co-Investigator (\$999,340)
- 2009 – 2011 Predictive biomarkers for anti-angiogenic therapy using nano-chips
NIH; RFA-OD-09-003 (Sood) 2009 Oct 01 – 2011 Sep 30
Co-Investigator (\$314,619, subcontract)
- 2010 – 2011 Olympus Model IX81 Automated Inverted Microscope with Confocal System
NIH/1S10RR027461-01; PAR-09-028 (Ferrari) 2010 Apr 01 – 2011 Mar 31
Principal Investigator (\$180,338)
- 2009 – 2013 Nanotechnology Platforms for Intraductal Delivery – Transforming Breast Cancer Therapy
NIH/NCI PA-09-008 EUREKA (Ferrari, Love, Sukumar) 2009 Jul 1 – 2013 Jun 30
Principal Investigator (\$1,201,019)
- 2010 – 2013 Identification of Biomarker for Anti-Angiogenic Therapy in Ovarian Cancer
DOD; Grant 10335247; W81XWH-09-OCR-CTR (Ferrari, Sood, Coleman, Mitra)
2010 Oct 1 – 2013 Sep 30
Principal Investigator (\$562,354)
- 2010 – 2013 Sustained in Vivo RNAi Delivery and Evaluation of Cellular Response
DOD; W81XWH-09-OCR-IDA (Sood) 2010 Oct 1 – 2013 Sep 30
Co-PI (\$334,825 subcontract)
- 2011 – 2013 Ultrasound Elastography Technologies for Real-Time Imaging of Tumor Fluid Transport in vivo
NIH/R01 PA-07-279 (Righetti) 2011 April 1 – 2013 Mar 31
Collaborator (\$117,264 subcontract)
- 2009 – 2014 Molecular Theranostics of Ovarian Cancer
NIH NCI 1P01 CA 136397-01 [PAR-09-025 Program Project P01] (Sood)
2009 Dec 01 – 2014 Nov 30
Co-investigator for subcontract (\$356,575)
- 2009 – 2014 Novel Multi-stage System for si-RNA Delivery in Ovarian Cancer
NIH/BRG R01 PA-07-279 2009 July 1 – 2014 June 30
Co-Principal Investigator (Ferrari, Lopez-Berestein, Sood) (\$3,444,810)
- 2009 – 2014 Center for Transport OncoPhysics
NIH/NCI RFA-CA-09-009 Physical Science-Oncology Centers (U54) (Ferrari)
2009 Sep 23 – 2014 Sep 22
Principal Investigator (\$13,655,407)

COMPLETED RESEARCH FUNDING

- 1989 – 1990 Mechanical Behavior of Fiberglass Reinforced Pressure Vessels
VetroResina, S.P.A., Udine, Italy
Principal Investigator (\$25,000)
- 1989 – 1990 On the Mechanical Characteristics of Fiber-Reinforced Polymers
Bilateral Italy-USA Research Grant, CNR, Italy (with G.C. Johnson)
Principal Investigator (\$4,000)
- 1990 – 1993 Optimization of Plasma-Spraying Techniques for the Deposition of Ceramic
Thermal-Barrier Coatings.
European Community BRITE Grant (PI: G Jacucci)
Co-Principal Investigator (\$250,000)
- 1991 Application of Micro Electro Mechanical Systems
TechSearch International, Austin, TX
Principal Investigator (\$5,000)
- 1991 – 1994 Microstructural Modeling and Probabilistic Prediction of Micro- Electro-Mechanical
Systems Response
National Science Foundation (with G.C. Johnson, A. DerKiureghian)
Principal Investigator (\$540,000)
- 1992 – 1993 Thermomechanics of Functionally Gradient Composite Materials
Engineering Foundation, Engineering Research Initiation Grant
Principal Investigator (\$25,000)
- 1992 – 1995 Embrittlement of Nanoscale Structures: An Interdisciplinary Study of Stress-Corrosion
Cracking
National Science Foundation (PI: T Devine)
Co-Principal Investigator (\$360,000)
- 1993 – 1994 MEMS Applications for Aircraft Flutter Reduction
Bilateral Italy-USA Research Grant, Italian National Research Council (with A.
Castellani, A. Bolis-Crema)
Principal Investigator (\$20,000)
- 1993 – 1998 National Young Investigator Award
National Science Foundation
Principal Investigator (\$500,000 with matching funds)
- 1994 – 1995 Science Support Grant
ALCOA
Principal Investigator (\$7,500)
- 1994 – 1996 Biomedical Microdevices
Viox Pharmaceuticals
Principal Investigator (\$1,350,000)
- 1995 – 1996 Esper A. Larsen Jr. Research Award
University of California, Berkeley
Principal Investigator (\$15,000)
- 1998 – 1999 Micromachined Albumin Retention Membranes, with Controlled Glucose Diffusion
Rates
Boehringer-Mannheim-Roche Diagnostics
Principal Investigator (\$168,000)

- 1999 The Ohio BioMEMS Consortium on Medical Therapeutic Devices
Ohio Board of Regents Hayes Investment Fund
(Ohio MicroMD) Principal Investigator (\$2.1 million with \$700,000 in matching funds)
- 1999 Ohio MicroMD Lab
State of Ohio Technology Action Fund
Principal Investigator (\$1.5 million with \$1.5 million in matching funds, with iMEDD, Inc. and SciTech Corporation)
- 1999 – 2000 James A. Shannon Director’s Award
National Institutes of Health
Principal Investigator (\$100,000)
- 1999 – 2001 Microfabricated Multifunctional Cell Culture Arrays
National Institutes of Health
Principal Investigator (\$69,232)
- 1999 – 2002 Foundations of Microfabricated Membranes for Bioseparation
National Science Foundation (PI: Desai TA)
Co-Principal Investigator (\$299,978)
- 2000 – 2001 Immunoisolation Biocapsules for Pancreatic Islet Cells
Small Business Innovation Research Program
National Institute of Diabetes and Digestive and Kidney Diseases, NIH (PI: Martin FJ)
Co-Principal Investigator (\$96,771)
- 2000 – 2003 Experimental and Theoretical Development of Bio-Fluid Transport Models through Nano- and Micro-fluidic Components
Defense Advanced Research Projects Agency (DARPA) (PI: Hansford D)
Co-Principal Investigator (\$2,000,000)
- 2001 Student Conference Support for “BioMEMS and Biomedical Nanotechnology World 2001”
Whitaker Foundation
Principal Investigator (\$8,000)
- 2001 – 2003 Micro-Fabricated Natural Killer Cells for the Detection and Treatment of Metastatic Tumors
NCI (PI: Martin FJ of iMEDD, Inc.)
Subcontract Principal Investigator (\$2.5 million)
- 2001 – 2006 Jeannie Lambert Research Endowment Fund in Biomedical Nanotechnology
(co-PI: Sanfillipp F)
Co-Principal Investigator (\$125,000)
- 2002 Nanoengineered Devices for the Oral Delivery of Analgesia in Pediatric Oncology
Hope Street Kids Foundation
Principal Investigator (\$35,000).
- 2002 – 2006 Cardiovascular Bioengineering Enterprise (CBEnterprise)
BRTTF from the State of Ohio
Principal Investigator (\$6.5 million funded by the State, over \$14 million with matching funds)
- 2003 – 2006 Nanomechanical Method for Molecular Analysis of Cancer
National Institutes of Health, R21 CA099089
Principal Investigator (\$199,972)

- 2004 – 2006 Nanotechnology Program Development
National Institutes of Health, National Cancer Institute, N01-CO-12400
Principal Investigator (\$1,572,552)
- 2005 - 2007 Engineered Nanoparticles for Delivery of Chemotherapeutic Agents
Department of Army, W81XWH-04-2-0035 (PI: Ward Casscells)
Co-Principal Investigator: (\$1,485,107)
- 2006 - 2007 Nanoparticles for Harvesting and Targeting Angiogenic Proteins
National Institutes of Health (NIH), R21 CA122864-01
Principal Investigator (\$273,313)
- 2006 - 2009 Acquisition of Scientific Superiority in Biomedical Nanotechnology
State of Texas Governor's Emerging Technology Fund
(Alliance for NanoHealth) Principal Investigator (\$2.5 million)
- 2007 - 2008 Innovation or Stagnation: Challenge and Opportunity on the Critical Path to New
Medical Products
Food and Drug Administration, Purchase Order Award, HHSF223200710792P
Principal Investigator (\$10,000)
- 2007 – 2008 BioGEO – Understanding the Effect of Size and Shape in Biological Systems to Learn
Fabricating Bio-mimetic Artificial Systems with Superior Properties
Department of Army, Defense Advanced Research Projects Agency (DARPA),
W31P4Q-07-1-0008
Principal Investigator (\$299,780)

REFEREED PUBLICATIONS

Journal Articles

- Ferrari M, Johnson GC. On the equilibrium properties of a 6mm polycrystal exhibiting transverse isotropy. *J Appl Physics*. 1988;63(9):4460-4468.
- Ferrari M, Johnson GC. The effective elasticities of short-fiber composites with arbitrary orientation distribution. *Mechanics Materials*. 1989;8(1):67-73.
- Ferrari M. Asymmetry and the high-concentration limit of the Mori-Tanaka effective medium theory. *Mech Materials*, 1991;11(3):251-256.
- Ferrari M. Closed form solution for a biphasic sphere subject to quadratic eigenstrains of radial symmetry. *J Appl Mech*. 1991;58(3):811-813.
- Ferrari M. On the domain of applicability of the Mori-Tanaka effective medium theory. *Rendiconti Matematica Accademia Lincei*. 1991 Sep 9;2:353-357.
- Ferrari M, Filipponi M. An appraisal of homogenizing techniques for porous and reinforced ceramics. *J Am Ceramic Soc*. 1991;74(1):229.
- Ferrari M, Harding J, Marchese M. Computer simulation of plasma sprayed coatings: II. Effective bulk properties and thermal stress calculations. *Surface Coating Technol*. 1991;48:147-154.
- Ferrari M, Harding J, Marchese M. Simulation of thermal barrier plasma-sprayed coatings. *Plasma Processing and Synthesis of Materials, Materials Research Society*. 1991;190:221-226.
- Chen JS, Kadic-Galeb A, Ferrari M, Devine TM. Embrittlement of nano-scale structures. *Mechanics Res Communications*, 1992;19(6):555-561.

Journal Articles, cont.

- Ferrari M. Anisotropic layers with through-thickness thermal and material variations. *J Thermal Stresses*. 1992;15(3):439-445.
- Ferrari M, Harding J. Thermal stress field in plasma-sprayed ceramic coatings. *J. Energy Resource Technol*. 1992;144:105-109.
- Ferrari M, Marzari N. A Mori-Tanaka theory for short-fiber composites: Application. *J Energy Resource Technol*. 1992;144:101-104.
- Ferrari M, Lutterotti L. Thermal stresses in bi-coated structures. *J Eng Mech*. 1992;118(9):1928-1938.
- Marzari N, Ferrari M. Textural and micromorphological effects on the overall elastic response of macroscopically anisotropic composites. *J Appl Mech*. 1992;59(2 Part 1):269-275.
- Granik V, Ferrari M. Micromechanics of granular media. *Mech Materials*. 1993;15(4):301-322.
- Lutz M, Ferrari M. Compression of a functionally gradient composite sphere. *Composites Eng*. 1993;3(9):873-884.
- Ferrari M. Composite homogenization via the poly-inclusion approach. *Composites Eng*. 1994;4(1):37-45.
- Ferrari M, Granik V. Doublet-based micromechanical approaches to yield and failure criteria. *Mater Sci Eng A*. 1994;175:21-29.
- Ferrari M, Lutterotti L. New method for the simultaneous determination of anisotropic residual stress and texture by x-ray diffraction. *J Appl Physics*. 1994;76(11):7246-7255.
- Kwon P, Dharan CKH, Ferrari M. Macroscopic analysis of axisymmetric functionally gradient materials under thermal loading. *J Energy Res Technol*. 1994;116:115-120.
- Ferrari M, Granik VT. Ultimate criteria for materials with different properties in biaxial tension and compression: A micromechanical approach. *Mater Sci Eng A*. 1995;MSA 202(1-2):84-93.
- Imam A, Johnson JC, Ferrari M. Determination of the overall moduli in second order incompressible elasticity. *J Mech Physics Solids*. 1995;43(7):1087-1103.
- Maddalena F, Ferrari M. Viscoelasticity of granular materials. *Mech Mater*. 1995;3(20):241-250.
- Nadeau JC, Ferrari M. Second-rank equilibrium and transport properties of fibrous composites: Effective predictions and bounds. *Composites Eng*. 1995;5(7):821-838.
- Rooney FJ, Ferrari M. Torsion and flexure of inhomogeneous elements. *Composites Eng*. 1995;5(7):901-912.
- Ferrari M, Hansford D, Mon K. Doublet-based approach to alloy elastic homogenization. *Math Model Sci Comput*. 1996;6:946-957.
- Ferrari M, Lutterotti L, Mathis S, Polonioli P, Wenk HR. New opportunities in the stress and texture fields by the whole pattern analysis. *Mater Sci Forum*. 1996;228-231:83-88.
- Rooney FJ, Ferrari M, Imam A. On the pressure distribution within tumors. *Math Model Sci Comput*. 1996;6:715-721.
- Mon K, Ferrari M. On corrosion-induced stress states in binary noble metal alloys. *Mater Sci Eng*. 1997;A232:88-102.
- Zhang M, Ferrari M. Reduction of albumin adsorption onto silicon surfaces by Tween 20. *Biotechnol Bioeng*. 1997;56(6):618-625.
- Desai TA, Chu WH, Tu JK, Beattie GM, Hayek A, Ferrari M. Microfabricated immunoisolating biocapsules. *Biotechnol Bioeng*. 1998;57(1):118-120.

Journal Articles, cont.

- Nadeau JC, Ferrari M. Invariant tensor-to-matrix mappings for evaluation of tensor expressions. *J Elasticity*. 1998;52:43-61.
- Nashat AH, Moronne M, Ferrari M. Detection of functional groups and antibodies on microfabricated surfaces by confocal microscopy. *Biotechnol Bioeng*. 1998;60(2):137-146.
- Zhang M, Ferrari M. Hemocompatible polyethylene glycol films on silicon. *Biomed Microdevices*. 1998;1(1):81-89.
- Zhang M, Desai T, Ferrari M. Proteins and cells on PEG immobilized silicon surfaces. *Biomaterials*. 1998;19(10):953-960.
- Chu WH, Chin R, Huen T, Ferrari M. Silicon membrane nanofilters from sacrificial oxide removal. *J MicroelectroMech Syst*. 1999 Mar;8(1):34-42.
- Desai TA, Chu WH, Rasi G, Sinibaldi-Vallebona P, Guarino E, Ferrari M. Microfabricated biocapsules provide short-term immunoisolation of insulinoma xenografts. *Biomed Microdevices*. 1999;1(2):131-138.
- Rooney FJ, Ferrari M. On the St. Venant problem for inhomogeneous circular bars. *J Appl Mech*. 1999; 66(1): 32-41.
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- Chu WH, Huen T, Tu J, Ferrari M. Silicon-micromachined direct pore filters for ultrafiltration. In: Gourley P, editor. *Micro and Nanofabricated Electro-Optical- Mechanical Systems for Biomedical and Environmental Application*. SPIE Proceeding Series, Vol. 2978. 1997. p. 111-122.
- Zhang M, Ferrari M. Enhanced blood compatibility of silicon coated with a self-assembled poly(ethylene glycol) and monomethoxypoly(ethylene glycol). In: Gourley P, editor. *Micro and Nanofabricated Electro-Optical- Mechanical Systems for Biomedical and Environmental Application*. SPIE Proceeding Series, Vol. 3258. 1998. p. 15-19.

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- Wang Y, Ferrari M. Vapor phase deposition of uniform and ultrathin silanes. In: Gourley P, editor. *Micro and Nanofabricated Electro-Optical- Mechanical Systems for Biomedical and Environmental Application*. SPIE Proceeding Series, Vol. 3258. 1998. p. 20-28.
- Desai TA, Chu WH, Rasi G, Sinibaldi-Vallebona P, Borboni P, Beattie G, Hayek A, Ferrari, M. Implantation of microfabricated immunoisolating biocapsules. In: Gourley P, editor. *Micro and Nanofabricated Electro-Optical- Mechanical Systems for Biomedical and Environmental Application*. , SPIE Proceeding Series, Vol. 3258. 1998. p. 40-47.
- Tu J, Huen T, Szema R, Ferrari M. Characterization of bulk-micromachined, direct-bonded silicon nanofilters. In: Gourley P, editor. *Micro and Nanofabricated Electro-Optical- Mechanical Systems for Biomedical and Environmental Application*. SPIE Proceeding Series, Vol. 3258. 1998. p. 148-155.
- Hansford D, Desai T, Tu J, Ferrari M. Biocompatible silicon wafer bonding for biomedical microdevices. In: Gourley P, editor. *Micro and Nanofabricated Electro-Optical- Mech. Systems for Biomedical and Environmental Application*. SPIE Proceeding Series, Vol. 3258. 1998. p. 164-168.
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- Desai T, Hansford D, Huen T, Ferrari M. Investigating cell immunoisolation parameters using microfabricated membranes. *Biomaterials Regulating Cell Function and Tissue Development*. Materials Research Society. 1999;530:7-12.
- Hansford D, Lee LP, Ferrari M. A novel technique for blister test specimen preparation using a polymeric template. *Materials Research Society Proceedings*. 1999; 518:118-23.
- Holman HYN, Zhang M, Goth-Goldstein R, Martin MC, Russell M, McKinney WR, Ferrari M, et al. detecting exposure to environmental organic toxins in individual cells: towards development of a micro-fabricated device. In: Ferrari M, editor. *Micro and Nanofabricated Structures and Devices for Biomedical Environmental Applications II*. SPIE Proceeding Series. 1999;3606:55-62.
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Book chapters, cont.

- Hansford D, Desai T, Ferrari M. Nano-scale size-based biomolecular separation technology. In: Kricka and Chen, editors. *Biochip Technologies*. Harwood Academic Publishers; 2000. p. 341-362.
- Lewis J, Ferrari M. BioMEMS for drug delivery applications. Invited chapter in: van den Berg A, editor. *Lab-on-a-Chip: Chemistry in Miniaturized Synthesis and Analysis Systems*. 2003. p. 373-389.
- Lee S, Smith B, Barnes P, Ruegsegger M, Ferrari M. Biological molecules in nanodevices. In: Bhushan B, editor. *Encyclopedia of Nanoscience and Nanotechnology*. Vol. I. Springer Verlag; 2004 Feb. p. 309-327.
- Sinha PM, Ferrari M. Sacrificial oxide layer nanotechnology for drug delivery. In: Lee A, Lee J, Ferrari M, editors. *BioMEMS and Biomedical Nanotechnology, Vol. I: Biological and Biomedical Nanotechnology*, Springer; 2005. p. 149-174.
- Cheng MM, Tasciotti E, Ferrari M. Silicon as a biomedical material. [*Proceedings of the*] *Solid-State Sensors, Actuators, and Microsystems Workshop*. Hilton Head Island, SC; 2008 June. p. 1-6.
- Consentino C, Amato F, Ferrari M. Characterization methods for quality control of nanopore and nanochannel membrane. In: Lee A, Lee J, Ferrari M, editors. *BioMEMS and Biomedical Nanotechnology*. Vol. 1: Biological and Biomedical Nanotechnology. Springer; 2006. p. 203-225.
- Desai TA, Sharma S, Walczak RJ, Boiarski A, Cohen M, Shapiro J, West T, Melnik K, Cosentino C, Sinha PM, Ferrari M. Nanoporous implants for controlled drug delivery. In: Desai TA, Bhatia S, Ferrari M, editors. *BioMEMS and Biomedical Nanotechnology*. Vol. 3: Therapeutic Micro/Nanotechnology. Springer; 2006. p. 253-276.
- Ferrari M, Fresta M, Paolino D, Sinha P. Drug delivery systems. In: Webster JG, editor. *Encyclopedia of Medical Devices and Instrumentation*. 2nd edition, vol. 2. Hoboken, NJ: John Wiley and Sons; 2006. p. 437-495.
- Ferrari M, Sakamoto J. Biomedical devices: Intersection of science, technology, and business. In: *Sage Sourcebook of Modern Biomedical Devices, Vol. I-IV: Business Environments in a Global Market*. Sage; 2007. Introduction.
- Godin B, Serda RE, Sakamoto J, Decuzzi P, Ferrari M. Nanoparticles for cancer detection and therapy. In: Vogel V, editor. *Nanotechnology*. Vol. 5: *Nanomedicine and Nanobiotechnology*. Weinheim: Wiley-VCH Verlag; 2008. p. 51-88.
- Pope-Harman A, Ferrari M. Medical nanotechnology and pulmonary pathology. In: Lee A, Lee J, Ferrari M, editors. *BioMEMS and Biomedical Nanotechnology*. Vol. 1: Biological and Biomedical Nanotechnology. Springer; 2006. p. 511-530.
- Smith BR, Ruegsegger M, Barnes PA, Ferrari M, Lee SC. Nanodevices in biomedical applications. In: Lee A, Lee J, Ferrari M, editors. *BioMEMS and Biomedical Nanotechnology*. Vol. 1: Biological and Biomedical Nanotechnology. Springer; 2006. p. 367-404.
- Sakamoto J, Decuzzi P, Gentile F, Rokhlin SI, Wang L, Xie B, Ferrari M. Nanomechanics and tissue pathology. In: Lee A, Lee J, Ferrari M, editors. *BioMEMS and Biomedical Nanotechnology*. Vol. 1: Biological and Biomedical Nanotechnology. Springer; 2006. p. 467-510.
- Serda R, Chiappini C, Fine D, Tasciotti E, Ferrari M. Porous silicon particles for imaging and therapy of cancer. In: Kumar, editors. *Nonmagnetic Inorganic Nanomaterials for Life Sciences*. NMLS Vo. 2. Wiley-VCH Verlag, 2008. p. 357-406.
- Frieboes H, Decuzzi P, Sinek J, Ferrari M, Cristini V. Computational modeling of tumor biobarriers: Implications for delivery of nano-based therapeutics. In: Zhang M, Xi N, editors. *Nanomedicine: A Systems Engineering Approach*. Hackensack, NJ: Pan Stanford Publishing, 2009.

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Ferrari M, Granik VT, Imam A, Nadeau J, editors. *Advances in Doublet Mechanics*. Lecture Notes in Physics, New Series M: Monographs, vol. m 45. Berlin, Heidelberg, New York: Springer Verlag; 1997.

Ferrari M. *Micro- and Nanofabricated Electro-Optical Mechanical Systems for Biomedical and Environmental Applications*. SPIE, The International Society for Optical Engineering; 1999 Jan.

Lee A, Lee J, Ferrari M, editors. *BioMEMS and Biomedical Nanotechnology. Vol I: Biological and Biomedical Nanotechnology*. Springer. 2006.

Ozkan M, Heller M, Ferrari M, editors. *BioMEMS and Biomedical Nanotechnology. Vol II: Micro/Nanotechnologies for Genomics and Proteomics*. Springer. 2006.

Desai T, Bhatia SN, Ferrari M, editors. *BioMEMS and Biomedical Nanotechnology. Vol III: Therapeutic Micro/Nanotechnologies*. Springer. 2006.

Bashir R, Werely S, Ferrari M, editors. *BioMEMS and Biomedical Nanotechnology. Vol IV: Biomolecular Sensing, Processing, and Analysis*. Springer. 2006.

Cristini V, Ferrari M, Decuzzi P, editors. *Nanoparticulate Delivery to Cancerous Lesions: Advances in Mathematical Modeling*. Ferrari M, series editor. *Fundamental Biomedical Technologies*. Vol. 2. Springer. Forthcoming (April 2010).

Series Editor

Ferrari M, series editor. *Fundamental Biomedical Technologies*. Springer.

Vol. 1: *Nanobiotechnology of Biometric Membranes*. Martin D, editor. 2007.

Vol. 2: *Nanoparticulate Delivery to Cancerous Lesions: Advances in Mathematical Modeling*. Cristini V, Ferrari M, Decuzzi P, editors. Forthcoming (April 2010).

Vol. 3: *Nanoparticles in Biomedical Imaging: Emerging Technologies and Applications*. Bulte JWM, Modo MMJ, editors. 2008.

Vol. 4: *Multifunctional Pharmaceutical Nanocarriers*. Torchilin V, editor. 2008.

Vol. 5: *Nanodevices Based on Protein Molecular Motors: An Engineering Approach*. Nicolau DV, editor. Forthcoming (April 2010).

Vol. 6: *Nanotechnology for Cancer Detection and Diagnosis*. Srivastava S, Cote R, editors. Forthcoming (May 2010).

Reports

Executive Office of the President of the United States, National Science and Technology Council, Interagency Working Group on Nanoscience, Engineering, and Technology. *Nanotechnology Research Directions: Visions for Nanotechnology R&D in the Next Decade*. Sept 1999.

National Research Council, Board on Army Science and Technology. *Opportunities in Biotechnology for Future Army Applications*. National Academy Press, June 2001. 61 pp.

National Research Council. *Materials Research to Meet the 21st Century Defense Needs*. 2002.

KEYNOTE LECTURES AND OTHER INVITED PRESENTATIONS (2007 – present)

Invited presenter. Partners HealthCare Conference: Science and Society: Closing the Gap, Boston, MA, 2007 January 19-21.

Invited speaker. NASA Human Research Program Investigator's Workshop, League City, TX, 2007 February 12-14.

Invited panel member. Biological Geometry Workshop, Defense Advanced Research Projects Agency (DARPA), Defense Sciences Office, Arlington, VA, 2007 March 20.

Invited speaker. "The Demographic Revolution: Its Implications for Society and Business." Aspen Institute Italia, Aspen Seminars for Leaders, San Clemente Palace, San Clemente Island, Venice, Italy, 2007 May 4-6.

Plenary lecture. European Science Foundation (ESF) Summer School in Nanomedicine. Cardiff, UK, 2007 June 10-15.

Keynote speaker. Nanobio—Europe International Conference, Muenster, Germany, 2007 June 13-15.

Keynote address. Cancer Nanotech 2007 Conference, Paris, France, 2007 June 26-28.

Invited speaker. President's Council on Bioethics, Washington, D.C., 2007 June 29.

Invited presenter. "Models and Methods in Computational Vascular and Cardiovascular Mechanics." Mini-symposium. 9th U.S. National Congress on Computational Mechanics, San Francisco, CA, 2007 July 23-26.

Invited speaker. Annual Meeting and Exposition, Nanotechnology. Association of Analytical Communities (AOAC). Anaheim, CA, 2007 September 16-20.

Keynote speaker. Vaccines and Global Health Issues: All You Never Wanted to Know about Vaccines and How One Could Change Your Life. BioTexas Summit 2007, Austin, TX, 2007 September 25.

Invited attendee. The Science and Technology in Society (STS) Forum 2007, Kyoto, Japan, October 7-9.

Invited attendee. 2nd NCI Alliance for Nanotechnology in Cancer Investigators Meeting, Chapel Hill, NC, 2007 October 16-18.

Host and Co-Chair. USAMRMC-TATRC IRT meeting: Nanotechnology solutions for long-term implantable devices, Houston, TX, 2007 October 23-25.

Invited speaker. "Nanomedical Landscapes..." 2007-2008 Materials Council Seminar Series, Georgia Institute of Technology, Atlanta, GA, 2007 November 20.

Keynote speaker. NanoBiotech World Congress, Boston, MA, 2007 November 13-14.

Invited presenter. Small Times NanoCon International, Drug Delivery and Therapeutics, Santa Clara, CA, 2007 November 14-16.

Invited speaker. BioNorth 2007, Discovery to Outcome: Competing in a Global Marketplace, Ottawa, Canada, 2007 November 19-20.

Invited speaker. Program of Excellence in Nanotechnology and Siteman Center for Cancer Nanotechnology Excellence Seminar Series, Washington University at St. Louis, St. Louis, MO, 2007 December 6.

Keynote speaker. SNM Molecular Imaging Center of Excellence, 2008 Mid-Winter Educational Symposium, Newport Beach, CA, 2008 February 17.

Keynote speaker. American Institute for Medical and Biological Engineering (AIMBE), The Global Impact of Medical and Biological Engineering. Washington, D.C., 2008 February 21.

Keynote Lectures, continued

Keynote speaker. National Cancer Institute Meeting Forum, Integrating and Leveraging the Physical Sciences to Open a New Frontier in Oncology, Arlington, VA, 2008 February 26-28.

Host. Scientific Workshop: Alliance for NanoHealth (ANH)/Food and Drug Administration (FDA) Nanotechnology Initiative, Houston, TX, 2008 March 10-12.

Invited panel member. Department of Defense (DOD) Congressionally Directed Medical Research Programs (CDMRP) Breast Cancer Innovator Research Project Award Panel, Washington, D.C., 2008 March 26-27.

Invited speaker. Biopharmaceutical Nanotechnology, Café Royal, London, UK, 2008 Mar 30-April 1.

Chairperson. The American Association for Cancer Research Annual Methods Workshop, Nanotechnology and Cancer, San Diego, CA, 2008 April 12-16.

Invited speaker. Nanotechnology in Medicine. Serbian Academy of Science, Belgrade, Serbia, 2008 May.

Invited speaker. Bioengineering Cancer Treatment. University of Kraguyevac, Serbia, 2008 May.

Invited speaker. Nanotechnology in Breast Cancer. 27th Annual Meeting of the (ANDOS) National Breast Cancer Association of Italy, Udine, Italy, 2008 May.

Invited speaker. Institute for Pure and Applied Mathematics (IPAM) Workshop, Los Angeles, CA, 2008 May 19-23.

Opening plenary keynote speaker. Organization of European Cancer Institutes (OECI) Scientific Conference, Discovering New Worlds in Medicine: Towards Nanoapplication in Cancer Prevention and Treatment, Genoa, Italy, 2008 May 21-24.

Invited opening plenary keynote address. 2008 Solid-State Sensor, Actuator, and Microsystems Workshop, Hilton Head, SC, 2008 June 1-2.

Invited speaker. EC-US Nanobiotechnology Workshop, Ispra, Italy, 2008 June 3-4.

Invited seminar. London Center Nanotech, University College/Imperial College, UK, 2008 June 17.

Invited speaker. Oxford University, UK, 2008 June 18.

Invited speaker. Swansea University, UK, 2008 June 19.

Invited speaker. Univ. Padova Medicina, Italy, 2008 June 23.

Invited speaker. Univ. Milano-Bicco, Italy, 2008 June 26.

Invited speaker – Overview lecture. Gordon Research Conference, Metals in Medicine, Procter Academy, Andover, NH, 2008 June 29 – July 4.

Invited speaker. Univ. Napoli Federico II, Italy, 2008 July 7.

Invited guest. National Breast Cancer Coalition Fund's (NBCCF), think tank meeting, Aspen Institute, Aspen Colorado, 2008 August 16-20.

Invited speaker. CEA-Leti High Level Workshop on Molecular Imaging, Grenoble, France, 2008 September 8-9.

Invited speaker. Nanoforum 2008 Conference: Micro e Nanotechnologies: Where research meets business. Milan, Italy, 2008 September 17-18.

Invited speaker. Nanotech Northern Europe 2008 Conference: Making nanotechnology happen. Copenhagen, Denmark, 2008 September 22-25.

Keynote Lectures, continued

- Invited speaker. First Joint U.S.-China Symposium on Nanobiology and Nanomedicine. Organized by the U.S. National Institutes of Health, The National Center for Nanosciences and Technology (China), and the Chinese Academy of Sciences. Beijing, China. 2008 October 20-22.
- Invited speaker. Carolina Center of Cancer Nanotechnology Excellence (C-CCNE) 2008-2009 Cancer Nanotechnology Symposium, Chapel Hill, NC, 2008 November 14.
- Keynote lecture. Ferrari M. 80 anno di ricerca al servizio del paziente. Fondazione IRCCS, Istituto Nazionale Dei Tumori. [80th anniversary, Italian National Cancer Institute] Italy. 2008 November 29.
- Invited participant. Aspen for the G8: Global Health Forum, Rome, 2009 February 12-13.
- Plenary speaker. Inaugural Symposium for the Global Center of Excellence (GCOE), “Center for Medical System Innovation through Multidisciplinary Integration”, University of Tokyo, Japan, 2009 Feb 20.
- Invited lectureship. Texas Christian University, Green Endowed Engineering Lecture Series, Ft. Worth, TX, 2009 Feb 26.
- Invited speaker. Frontiers of Cancer Research: Biology, Emerging Technologies and Therapeutics. Houston, TX, 2009 March 26.
- Invited speaker. “Cancer Nanotechnologies”. Texas Academy of Medicine, English, Science, and Technology, Houston, TX, 2009 March 26.
- Invited speaker. “Nanotechnology Opportunities in Cancer”. 2009 Symposium on Nanotechnology for Cancer Prevention, Diagnosis, and Treatment (M Amiji, V Torchilin, chairs). Nanotech Conference and Expo, Houston, TX, 2009 May 6.
- Keynote lecture. Center for Nanohealth, Swansea University, UK, 2009 June 9.
- Invited lecturer. Imperial College, London, 2009 June 11.
- Invited speaker. Second European Science Foundation Summer School in Nanomedicine. Lisbon, Portugal, 2009 June 12-13.
- Invited speaker. CeNTech Day, Munster, Germany, July 13, 2009.
- Invited keynote lecture. International Conference on Nanoscience and Technology, China 2009 (ChinaNANO 2009), Beijing, China, 2009 Sept 1-3.
- to be given:**
- Invited inaugural speaker. TAMU Nano/Micro Seminar. College Station, Texas, 2009 Sept 11.
- Invited speaker. Research seminar/core course on Topics in Molecular Medicine, UT joint MD/PhD program. Houston, Texas, 2009 Sept 16 and 23.
- Invited lecture. Nanomedicine Is a Team Sport. Executive Lecture Series, Rice University, Houston, Texas, 2009 Sept 18.
- Invited speaker. The U.S. Cancer Nanotechnology Plan. International INCa: Symposium OncoNano. Paris, France, 2009 Oct 5.
- Invited speaker. University of Texas at San Antonio: Department of Biomedical Engineering and the Research Centers in Minority Institutions; University of Texas Health Science Center at San Antonio, Institute for Integration of Medicine and Science. Seminars in Translational Research (STRETCH). San Antonio, TX, 2009 Oct 21.

Keynote Lectures, continued

- Invited keynote address. University of Houston Bio-Research Career Information Day. Houston, Texas, 2009 Oct 29.
- Invited keynote speaker. 5th Annual MEMS Executive Congress. Sonoma, California, 2009 Nov 4-5.
- Invited speaker. 51st Annual Meeting of the Italian Society of Cancerology-Nanotechnologies and Nanodelivery. Milan, Italy, 2009 Nov 23-26.
- Invited speaker, French-American Innovation Day (FAID) conference on Theranostics and Biology: Technological Challenges and Applicative Breakthroughs Harvard Medical School Conference Center, Boston, 2009 Dec 3-4.
- Invited speaker. 24th Symposium on Gravity-Related Phenomena in Space Exploration. Part of the 48th Aerospace Sciences Meeting, American Institute of Aeronautics and Astronautics, Orlando, FL, 2010 Jan 4-7.
- Invited colloquium presentation on nanobiomedicine research. Vanderbilt Institute of Nanoscale Science and Engineering (VINSE), Vanderbilt University, Nashville, Tennessee, 2010 Jan 20.
- Invited speaker. Multidisciplinary seminar series, California NanoSystems Institute (CNSI) at UCLA. Los Angeles, California, 2010 Jan 26.
- Invited plenary speaker. ASME 1st Global Congress on Nanoengineering for Medicine and Biology (NEMB2010): Advancing Health Care through NanoEngineering and Computing. Co-Sponsored by USACM. Houston, Texas, 2010 Feb 7-10.
- Keynote speaker. Industry and Health Authority Conference on Oligonucleotide Therapeutics. Co-sponsored by the Drug Information Association, Food and Drug Association (U.S.), Health Canada, and the Oligonucleotide Therapeutics Society. Bethesda, MD, 2010 March 23.
- Keynote speaker: "The Science of Nanobiotechnology and Oversight Challenges." Conference on Governing Nanobiotechnology: Reinventing Oversight in the 21st Century. University of Minnesota, Minneapolis, 2010 April 15.
- Keynote speaker. 42nd Annual Oak Ridge Conference, sponsored by the American Association for Clinical Chemistry. San Jose, California, 2010 April 22 – 23.
- Keynote speaker. ILSI [Israel Life Science Industry]. Biomed Israel 2010: 9th National Life Science and Technology Week. Tel Aviv, 2010 June 14 – 16.

OTHER PRESENTATIONS (selected; last two years only)

- Decuzzi P, Ferrari M. Geometrical effects in cell-particle interactions at the mesoscale. Minisymposium on Multiscale Model-Based Simulation with Application to Nano and Bio Systems II. Presented to the 8th World Congress on Computational Mechanics (WCCM8) and the 5th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS) 2008, Venice, Italy, 2008 July 1.
- Calo V, Hughes TJR, Ferrari M, Decuzzi P. Dynamics of nano particles in patient specific blood vessels. Minisymposium on Patient Specific Computational Modeling I. Presented to the 8th World Congress on Computational Mechanics (WCCM8) and the 5th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS) 2008, Venice, Italy, 2008 July 4.
- Kojic M, Filipovic N, Stojanov B, Viastelica I, Ferrari M, Decuzzi P. The margination dynamics of non-spherical particles in laminar flows. Minisymposium on Meshfree and Generalized/Extended Finite Element Methods VI. Presented to the 8th World Congress on Computational Mechanics (WCCM8)

and the 5th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS) 2008, Venice, Italy, 2008 July 4.

PATENTS

Patents Granted

High vertical aspect ratio thin film structures. Keller GC, Ferrari M, inventors; Regents of the University of California, assignee.

- United States patent US 6,015,559. Filed 1995 Jun 6; granted 2000 Jan 18.
- WIPO WO/1995/024736. Filed 1995 Mar 07; published 1995 Sep 14.

Implantable analyte sensor. Essenpreis M, Desai TA, Ferrari M, Hansford DJ, inventors; Regents of the University of California, assignee.

- United States patent US 6,405,066. Filed 2000 Mar 17; granted 2002 June 11.
- WIPO WO/2001/068901. Published 2001 Sep 20.

Method for forming a filter. Chu WH, Ferrari M, inventors; Regents of the University of California, assignee.

- United States patent US 5,985,164. Filed 1997 Oct 15; granted 1999 Nov 16.

Microfabricated capsules for immunological isolation of cell transplants. Keller CG, Ferrari M, inventors; Regents of the University of California, assignee.

- United States patent US 5,893,974. Filed 1994 Jun 6; granted 1999 Apr 13.

Microfabricated filter and capsule using a substrate sandwich. Tu J, Ferrari M, inventors; Regents of the University of California, assignee.

- United States patent US 5,938,923. Filed 1997 Apr 15; granted 1999 Aug 17.

Microfabricated filter with specially constructed channel walls and containment well, and capsule constructed with such filters. Chu WH, Ferrari M, inventors; Regents of the University of California, assignee.

- United States patent US 5,798,042. Filed 1996 June 14; granted 1998 Aug 25.

Microfabricated filter with specially constructed channel walls and containment well, and capsule constructed with such filters. Chu WH, Ferrari M, inventors; Regents of the University of California, assignee.

- United States patent US 6,044,981. Filed 1998 Aug 25; granted 2000 Apr 4.

Microfabricated particle filter. Keller CG, Ferrari M, inventors; Regents of the University of California, assignee.

- United States patent US 5,651,900. Filed 1994 Mar 7; granted 1997 Jul 29.
- WIPO WO/1995/024261. Filed 1995 Mar 07; published 1995 Sep 14.
- European patent EP. Filed 1996 Sep 16; published 1996 Dec 27; granted 1999 Mar 11.

Microfabricated particle thin film filter and method of making it. Keller CG, Ferrari M, inventors; Regents of the University of California, assignee.

- United States patent US 5,948,255. Filed 1997 May 2; granted 1999 Sep 7.

Micromachined capsules having porous membranes and bulk supports. Chu WH, Ferrari M, inventors; Regents of the University of California, assignee.

- United States patent US 5,770,076. Filed 1995 Jun 7, granted 1998 Jun 23.

Micromachined porous membranes with bulk support [corrected title]. Chu WH, Ferrari M, inventors; Regents of the University of California, assignee.

- United States patent US 5,985,328. Filed 1998 Jan 28; granted 1999 Nov 16.
- WIPO WO/1996/040420. Filed 1996 May 21; published 1996 Dec 19.
- European patent EP. Filed 1997 Dec 23; published 1998 Jan 4; granted 2003 Oct 22.

Particles for oral delivery of peptides and proteins. Ferrari M, Dehlinger PJ, Martin FJ, Grove CF, Friend DR, inventors; Regents of the University of California, assignee.

- United States patent US 6,355,270. Filed 2000 Jan 6; granted 2002 Mar 12.

Particles for oral delivery of peptides and proteins. Grove CF, Dehlinger PJ, Friend DR, Martin FJ, Ferrari M, inventors; Regents of the University of California, assignee.

- WIPO WO/2000/041740. Filed 2000 Jan 7; published 2000 July 20.
- European patent EP. Filed 2001 July 12; published 2001 Oct 10; granted 2007 Aug 29.

Therapeutic microdevices and methods of making and using same. Ferrari M, inventor; Regents of the University of California, assignee.

- United States patent US 6,107,102. Filed 1997 Aug 7; granted 2000 Aug 22.
- WIPO WO/1996/041236. Filed 1996 Jun 7; published 1996 Dec 19. European patent filed 1998 Jan 05; published 1998 Apr 1; withdrawn 1999 Mar 17. Canada patent filed 1997 Nov 27; abandoned 2001 Jan 29.

Patents Pending

Compositions and methods for multistage drug delivery. Ferrari M, inventor.

- Tech ID 2006-0057, File Date 08/08/2006, Serial No. 60/821,750. (Pending)

Endocytotic particles. Decuzzi P, Ferrari M, inventors; Board of Regents of the University of Texas System, assignee.

- United States patent application 20080206344. Filed 2008 Feb 20; published 2008 Aug 28. Tech ID 2007-0028, File Date 02/26/2007, Serial No. 60/891,584. (Pending)
- WIPO WO/2008/106350. Filed 2008 Feb 20; published 2008 Sep 04.

Fabrication and modification of nanoporous silicon particles. Ferrari M, inventor.

- Tech ID 2007-0042, File Date 04/27/2007, Serial No. 60/914,358. (Pending)

Loading, release, biodegradation and biocompatibility of a nanovector delivery system. Ferrari M, inventor.

- Tech ID 2007-0041, File Date 04/27/2007, Serial No. 60/914,348. (Pending)

Optimized particles for cell targeting. Ferrari M, inventor.

- Tech ID 2007-0002, File Date 10/11/2006, Serial No. 60/829,075. (Pending)

Patents Filed

Diffusion delivery systems and methods of fabrication. Ferrari M, Lui X, Sinha MP, Smith B, Sharma S, inventors; The Ohio State University, assignee.

- WIPO WO/2006/108053. Filed 2006 Apr 5; published 2006 Oct 12.

Diffusion delivery systems and methods of fabrication. Ferrari M, Lui X, Sinha MP, Smith B, Sharma S, inventors; The Ohio State University, assignee.

- WIPO WO/2006/108054. Filed 2006 Apr 5; published 2006 Oct 12.

Method for producing biologically-active molecule on host organism. Chu W-H, Ferrari M, inventors; University of California, applicant.

- United States application 19950482237, filed 1995 Jun 07.
- Japan JP2007091752; published 2007 Apr 12.

Method of forming a membrane with nanometer scale pores and application to biofiltration. Hansford DJ, Ferrari M, inventors; Regents of the University of California, assignee.

- US Patent Application 20030205552. Filed 2003 May 16. Published 2003 Nov 6.

Methods and compositions for targeting fenestrated vasculature. Decuzzi P, Ferrari M, inventors; Board of Regents of the University of Texas System, applicant.

- WIPO WO/2008/041970. Filed 2006 Sep 28; published 2008 Apr 10.

Microfabricated capsules for isolation of cell transplants. Keller CG, Ferrari M, inventors; Regents of the University of California, assignee.

- WIPO WO/1995/024472. Filed 1995 Mar 07; published 1995 Sep 14.

Microfabricated particles and methods for treating solid tumors. Martin FJ, Ferrari M, inventors.

- United States patent application 20030114366. Filed 2000 Jan 6; published 2003 June 19.

Multistage delivery of active agents. Ferrari M, inventor; Board of Regents of the University of Texas, applicant.

- WIPO patent application WO/2008/021908. Filed 2007 Aug 08; published 2008 Feb 21.

Nanochanneled device and method of fabrication. Ferrari M, Liu X, Grattoni A, Cheng MM, Hosali S, Goodall R, Medema R, Hudson L.

- United States patent application 61/114687; Filed 2008 November.

Nanoporous substrates for [the] analytical methods. Ferrari M, Cheng MM-C, Cuda G, Gaspari M, Geho D, Liotta L, Petricoin E, Robertson F, Terracciano R, inventors; The Ohio State University Research Foundation and the Board of Regents of the University of Texas System, assignees.

- United States patent application no. 11/641,970. Pub no. US 2008/0277578. Filed 2006 Dec 20; published 2008 Nov 13.
- WIPO WO/2007/120248. Filed 2006 Dec 12; published 2007 Oct 25.

Particles for cell targeting. Decuzzi P, Ferrari M, inventors.

- United States patent application 20080102030. Filed 2007 Oct 10; published 2008 May 1.
- Board of Regents of the University of Texas System, applicant. WIPO patent application WO/2008/067049. Filed 2007 Oct 11; published 2008 June 5.

Porous particles and methods for making thereof. Ferrari M, Liu X, Cheng M-C, inventors.

- United States patent application 20080280140. Filed 2008 Apr 28; published 2008 Nov 13.
- Board of Regents of the University of Texas System, applicant. WIPO patent application WO/2008/134637. Filed 2008 Apr 28; published 2008 Nov 6.

Quality control method for micro-nano-channels silicon devices. Grattoni A, Ferrari M, Liu X.

- United States patent application 61/049,287. Filed 2008 April.

System and method for screening tissue. Liu J, Ferrari M, Rokhlin SI, Sedmak DD, inventors.

- United States patent application. Pub. No. 20040064050. Filed 2002 Sep 20; published 2004 Apr 1.

System and method for screening tissue. Liu J, Ferrari M, Rokhlin SI, Sedmak DD, inventors; The Ohio State University, assignee.

- United States patent application. Pub. No. 20070199340. Filed 2007 May 17; published 2007 Dec 27.

Patents Abandoned/Withdrawn

Apparatus and method for forming a membrane with nanometer scale pores. Hansford D, Ferrari M, inventors; Regents of the University of California, assignee. WIPO WO/2001/036321. Filed 2000 Nov 17; published 2001 May 25; withdrawn 2003 Feb 03.

Microfabricated devices for diagnostic applications. Ferrari M, Keller GC, inventors; Regents of the University of California, assignee. WIPO WO/1996/039937. Filed 1996 June 07; published 1996 Dec 19; withdrawn 1998 Jul 31.

Microfabricated filter and capsule formed by substrates. Kuang-Jieh Tu J, Ferrari M, inventors; Regents of the University of California, assignee. WIPO WO/1998/046325. Filed 1998 Mar 10; published 1998 Oct 22; abandoned 2000 Oct 15.

Microfabricated filter and method of making same. Chu WH, Ferrari M, inventors; Regents of the University of California, assignee. WIPO WO/1997/047370. Filed 1997 Jun 11; published 1997 Dec 18; abandoned 1999 Apr 15.

EDITORIAL ACTIVITIES

Editor-in-Chief

1997 – present *Biomedical Microdevices: BioMEMS and Biomedical Nanotechnology* (Springer)

Series Editor-in-Chief

2007 – present *Fundamental Biomedical Technologies* (Springer)

Editorial Boards

1991 – 1994 *Composite Engineering*

1995 – 1999 *Composites, Part B: Engineering*

2003 – present *International Journal of Mechanics and Materials in Design*

2003 – present *Clinical Proteomics*

2004 – present *NanoBiotechnology*

2005 – present *International Journal of Nanomedicine*

2005 – present *NanoMedicine*

2007 – present *Trends in Biotechnology* (Tibtech)

2007 – present *Nanotechnology, Science, and Applications* (Honorary)

2007 – present *Open Structural Biology Journal*

2007 – present *Open Structural Biology Reviews*

2007 – present *Journal of the Serbian Society for Computational Mechanics* (SDRM)

2008 – present *Cancer Nanotechnology: Basic, Translational, and Clinical Research*

2008 – present *Journal of Biomedicine and Biotechnology* (oncology section)

Editorial Activities, cont.**Reviewer**

<i>ASME Journal of Applied Mechanics</i>	<i>International Journal of Solids and Structures</i>
<i>ASME Journal of Energy Resource Technology</i>	<i>Journal of Controlled Release</i>
<i>ASCE Journal of Engineering Mechanics</i>	<i>Journal of Fluids Engineering</i>
<i>Acta Metallurgica et Materialia</i>	<i>Journal of the Mechanics and Physics of Solids</i>
<i>Advanced Materials</i>	<i>Journal of Physical Chemistry: 2009</i>
<i>Applied Biochemistry</i>	<i>Lancet Oncology</i>
<i>Applied Organometallic Chemistry</i>	<i>Langmuir: 2009</i>
<i>Applied Physics Letters</i>	<i>Nano Letters</i>
<i>Biomaterials, Biotechnology and Bioengineering</i>	<i>Nature Biotechnology: 2009</i>
<i>Biotechnology Progress</i>	<i>Nature Materials: 2009</i>
<i>Cancer Research: 2009</i>	<i>Nature Medicine: 2009</i>
<i>Clinical Proteomics</i>	<i>Nature Nanotechnology: 2009</i>
<i>Colloids and Surfaces B: Biointerfaces</i>	<i>Nature Reviews Cancer: 2009</i>
<i>European Journal of Biophysics</i>	<i>Proceedings of the National Academy of Sciences</i>
<i>IEEE Journal of MicroElectroMechanical Systems</i>	

PROFESSIONAL MEMBERSHIPS: CURRENT

1989 – present Materials Research Society (MRS)
1992 Reviewer

1992 – present American Society of Mechanical Engineers (ASME)
1990 – 1995 Reviewer
1990 – 1995 Session Developer
1990 – 1995 Session Chair
1995 – 1996 Materials Committee, Petroleum Division

1995 – present American Association for the Advancement of Science (AAAS)
2002 Review Panel
2002 Chairman, Review Panel

2000 – 2004 International Society for BioMEMS and Biomedical Nanotechnology
2000 – 2004 Founding President
2004 merged with American Academy of Nanoscience

2008 – present American Institute for Medical and Biological Engineering (AIMBE)
2001 Member, Academic Council

2008 – present Biomedical Engineering Society (BMES)
Invited Platform Session Chair for Biomedical Nanotechnology II session, BMES 2009:
Bridging the 3 Rivers of Biology, Engineering, and Medicine, Pittsburg,
Pennsylvania, 2009 Oct 7-9.
Invited Technical Program Co-Chair for 2010 Annual Fall Meeting
(Austin, Texas, Oct 6–9, 2010)

2009 – present NetWork di Bioetica

PROFESSIONAL MEMBERSHIPS: PREVIOUS

- 1985 – 1991 International Union Theoretical and Applied Mechanics (IUTAM)
- 1988 – 1990 Society for Natural Philosophy
- 1992 – 2000 American Society of Civil Engineers
- 1995 – 1998 California Academy of Sciences
- 1995 – 1998 New York Academy of Science (NYAS)
- 1995 – 1999 International Society for Optical Engineering (SPIE)
Micro- and Nanofabricated Structures and Devices for Biomedical Environmental
Applications (BioS Conferences)
1995 – 1999 Scientific Committee
1999 Conference Chairman

OTHER PROFESSIONAL SERVICE (last two years only)

- 2007 Program Committee Member, IEEE/ICME International Conference on Complex Medical Engineering.
- 2007 Technical Planning Committee, 5th Era of Hope Conference, Baltimore, MD, June 25-28.
- 2008 Program Committee Member, American Vacuum Society International Symposium and Exhibition, BioMEMS: From Science Discovery to Technology to Clinic, Boston, MA, October 19-24.
- 2008 – 2009 Member, 2009 Education Committee, American Association for Cancer Research.
- 2009 Symposium Co-Chair, Symposium on Nano Medicine, Nanotech Conference and Expo 2009, Houston, TX, 2009 May 5.

INTERNATIONAL SERVICE (selected)

- 2001 UK: Medical Research Council of the United Kingdom: Residential Strategy Development Meeting, Heathrow, London.
- 2003 Italy: University of Calabria, Magna Grecia, Italy: Senior Advisor to the Rector, Medical Research Strategic Initiatives.
- 2003 Italy: Advisor, biomolecular medicine, Area di Ricerca di Trieste.
- 2003 Italy: Member, Industrial Advisory Board, Synchrotron of Trieste.
- 2004 Italy: President, Scientific Advisory Board of the Consortium for Biomolecular Medicine of the Friuli Venezia Giulia.
- 2005 Italy: Advisor to the National Committee on Bioethics.
- 2005 – 2006 Italy: Chairman of the National Committee on Bionanotechnology.
- 2006 Canada: Member, International Panel to Assess Canadian Research Strength in Nanotechnology.
- 2006 Italy: Advisor on Innovation to the Governor of the Region Friulli Venezia Giulia, Trieste.
- 2007 Austria: Vienna Science and Technology Fund (WWTF: Wiener Wissenschafts-Forschungs- und Technologiefonds), International Jury, invited expert reviewer, Project Call 2007: Mathematics *and* ... thematic program.

- 2007 Organizing Committee Member, IEEE International Conference on Nano/Molecular Medicine and Engineering (IEEE-NANOMED), Macau SAR, China.
- 2008 Founder, Accademia d'Nanogagliato (annual by-invitation-only international conference)
- 2008 Member, iNANO-MEDICINE International Advisory Board, University of Aarhus, Denmark.
- 2008 Steering Committee, NanoBio – Seoul 2008, Yonsei University, Seoul, Korea, Oct 30-31.
- 2008 – present Italy: Scientific Advisory Board, Alta Scuola Politecnica Italia.
- 2008 – present UK: Chairman, International Advisory Board, Center for Nanomedicine, Swansea University.
- 2008 – 2009 Invited member, Scientific Committee. 2009 South-East European Conference on Computational Mechanics (SEECCM), Special Interest Conference, Rhodes, Greece, 2009 June 22-24.
- 2008 – 2009 International Advisory Committee, International Conference on Nanoscience and Technology, China 2009 (ChinaNANO 2009), 2009 Sept 1-3, Beijing, China.
- 2009 – 2010 International Advisory Board, 7th International (biennial) Conference on Porous Semiconductors: Science and Technology (PSST-2010), Valencia, Spain, 2009 March 14-19.
- 2009 – International Scientific Advisory Board, Waterloo Institute of Nanotechnology, University of Waterloo, Canada.

FEDERAL AND NATIONAL SERVICE (selected)

- 1999 Executive Office of the President, United States of America: Nanotechnology Research [report]
- 1999 National Science and Technology Council, Committee on Technology: Interagency Working Group on Nanoscience, Engineering and Technology. [report: *Directions*, 2000]
- 1999 – 2000 National Research Council, Board on Army Science and Technology, Committee on Opportunities in Biotechnology for Future Army Applications. [report: Jan 2001]
- 2001 Science Applications International Corporation (SAIC, McLean, VA): Innovative Approaches to Countering Biological Terrorism.
- 2001 National Institute of Standards and Technology (NIST, Gaithersburg, MD): Panelist, Workshop on Nanotechnology in Early Detection of Cancer.
- 2001 National Reconnaissance Office: Invited Tutorial on Biomedical Nanotechnology.
- 2001 Science Applications International Corporation (SAIC, Del Mar, CA): Sensors and Sensing Workshop.
- 2002 National Institutes of Health: Session Chair, BECON 2002 Symposium, Biosensors for Research and Medicine.
- 2002 Food and Drug Administration: (first invited) Tutorial on Biomedical Nanotechnology.
- 2002 U.S. Department of Agriculture: Session Chair and Speaker, Nanoscale Science and Engineering for Agriculture and Food Systems.
- 2002 – 2003 National Heart, Lung, and Blood Institute: Chairman, Planning Committee and Working Committee, National Initiative on Nanotechnology.

Federal and National Service, cont.

- 2003 National Cancer Institute: Special Expert Advising the Director on Cancer Nanotechnology.
- 2003 U.S. Department of Defense: Member, Integration Committee, Congressionally Mandated Army Breast Cancer Research Program.
- 2003 National Cancer Institute: Meeting of Distinguished Scientists on the Future of Cancer Research.
- 2003 National Science Foundation: Chair of the U.S. Delegation, Workshop on Medical Nanotechnology, National Science Foundations of the U.S. and Japan, (joint), Yokohama, Japan.
- 2003 – 2006 National Cancer Institute: Eminent Scholar and Special Expert on Nanotechnology [to establish the NCI Alliance for Nanotechnology in Cancer; nano.cancer.gov]
- 2004 National Cancer Institute: Meeting of Distinguished Scientists on the Future of Cancer Research.
- 2004 National Cancer Advisory Board: Development of a National Biotechnology Initiative for Cancer, member, Cancer in the Organism working group.
- 2004 Institute of Medicine: Appointed Reviewer of the Congressionally Mandated Army Cancer Research Program. [Congressional briefing on Cancer and Nanotechnology, Oct 18.]
- 2005 Strategic Consensus Conference on Biomarker Research in Breast Cancer (NBCCF), Philadelphia, PA, Nov 14-15.
- 2007 National Cancer Institute, Board of Scientific Counselors: Member, External Advisory Board Committee to Nanobiology Program (CCR).
- 2007 June 29 President's Council on Bioethics.
- 2009 National Institutes of Health: Invited participant and speaker, NIH Nanoweek 2009. Nanotechnology at NIH: Basic Concepts, Current Research, and Medical Applications.
- 2009 Jan 27-29 DARPA Strategic Technology Office. Keswick, VA.
- 2009 U.S. Department of Defense: Member, Integration Panel, Peer Reviewed Cancer Research Program.
- o U.S. Department of Defense: Member, Executive Committee (EC), Integration Panel (IP), Peer Reviewed Cancer Research Program (PRCRP).
 - o FY Prescreening and Programmatic Review Meeting. Washington, DC, 2009 Oct 12–13.
- 2009 Jul 27-29 DARPA/DSO Fracture Putty Program Review Meeting (with presentation). New York.
- 2009 – 2012 National Institute of Standards and Technology: Advisory Board, Technology Innovation Program.

Grant Review Panels

- 1994 National Research Council.
- 1999 Department of Energy. Review panel on pilot projects for biomedical engineering.
- 1999 National Cancer Institute. Chair, special emphasis panel. Novel technologies for noninvasive detection, diagnosis, and treatment of cancer.
- 1999 Department of Defense. Panelist, NEMS for biotechnology applications.
- 1999 National Aeronautics and Space Administration. Co-chair, Advanced Environmental Monitoring and Control Peer Review Panel, Information Dynamics, Inc./Universities Space Research Association (IDI/USRA).
- 2001 EPSCOR Experimental Program to Stimulate Experimental Research.
- 2001 New Jersey Commission on Science and Technology, External Review Board.
- 2001 – 2002 National Research Council, National Materials Advisory Board. Committee member, Materials Research for Defense.
- 2002 National Cancer Institute. Chairman, panel review meeting.
- 2003 National Cancer Institute. Chair, Cancer Nanotechnology Intramural Working Group and Extramural Working Group.
- 2007 NIH Bioengineering Sciences and Technology, Integrated Review Group Study Section.
- 2009 NIH Digestive, Kidney and Urological Systems (DKUS) IRG, Pathobiology of Kidney Disease (PBKD) Study Section, Kidney Dialysis, Monitoring, and Therapeutics Small Business Review.

Other Panels

- 2007 Global Indus Technovators Awards. Panel judge, Massachusetts Institute of Technology, Indian Business Club.

STATE SERVICE

- 2000 Office of the Governor, Ohio: Task Force on Biotechnology [advising Gov. Bob Taft on The Ohio Plan (TOP)]
- 2002 Interprofessional Commission of Ohio. Panelist, Interprofessional Public Policy Panel on Technology and Ethics.

TEACHING: CURRENT

HI 4324 Nanomedicine in Health Care (Instructor: Ananth Annapragada, associate professor)
 School of Health Information Sciences; 3 credit hours
 Fall 2007, Fall 2008

Graduate School of Biomedical Sciences (joint program): visiting rotation (one quarter each)

<i>Year</i>	<i>Student</i>	<i>Degree</i>	<i>Institution / program</i>
2006	Sandra Saldana	PhD Biochemistry	UTHSC-H / graduate student
2006	Kevin Plant	BS Biomedical Eng	UT Austin / undergraduate student
2006	Sung Kim	MS Biomedical Eng	UT Austin / graduate student
2006	Cynthia Chmielewski	MS Biomathematics	UTHSC-H / graduate student
2006	Zongxing Wang	BE Biomedical Eng	UT Austin / graduate student
2006	Ye "Tony" Hu	MS Biomedical Eng	UT Austin / graduate student
2007	Jorge Del Aguila	MS Biochemistry	UTHSC-H / graduate student
2007	Jorge Maisonet-Colón	Biochemistry	UTHSC-H / graduate student

Graduate students supervised

<i>Year</i>	<i>Student</i>	<i>Degree</i>	<i>Institution / program</i>
2007–	Brandon Brown	MD/PhD Biomedical Eng	UTHSC-H / graduate student
2007	Sanga Sandeep	MS Biomedical Eng	UT Austin / graduate student
2007–	Ciro Chiappini	MS Biomedical Eng	UT Austin / graduate student
2007–	Seiyoung Lee	Mechanical Eng	UT Austin / graduate student
2007–	Aman Mann	PhD Biochemistry	UTHSC-H / graduate student
2007–	Silvia Ferrati	MS Biomedical Eng	UTHSC-H / graduate student (SHIS)

International students supervised

<i>Year</i>	<i>Student</i>	<i>Degree</i>	<i>Last known institution / position</i>
2006	Fabio Fais	BS Engineering	Student/Italy
2006–2009	Alessandro Grattoni	PhD Mechanical Eng	Politecnico di Torino, Italy / Research Technician, UTHSC-H
2007–2008	Francesco Gentile	PhD Biomedical Eng	UMG, Italy
2008–2010	Yuahua Cheng	PhD Chemistry	Tsinghua University, China
2008–2010	Rita Bosetti	PhD Economics	Hasselt University, Belgium

Postdoctoral Fellows

<i>Year</i>	<i>Student</i>	<i>Field</i>	<i>Last known institution / position</i>
2006	Ennio Tasciotti, PhD	Biochemistry	UTHSC / Asst. Prof. Biomedical Eng.
2006–	Rohan Bhavane, PhD	Chemical Engineering	
2007–	Rita Serda, PhD	Biochemistry	
2007–	Biana Godin-Vilentouck	Pharmacology (Pathology, toxicology, imaging)	
2007–	Daniel Fine, PhD	Electrical Engineering (Silicon fabrication)	
2007–	Enrica DeRosa, PhD	Biomedical Engineering	
2008–	Ali Bouamrani, PhD	Biochemistry (Biomarker validation)	
2008–	Marites Melanconis	Chemistry (Molecular Imaging)	

TEACHING: PREVIOUS**University of California, Berkeley***New classes devised and instituted*

1991	Microstructured Materials
1992	Mechanics of Solids
1996	Biomedical Microdevices
1997	Biomaterials
1998	Immunology and Engineered Implants

Other classes taught

Crystallography and Crystal Defects
Mechanics of Materials
Deformation, Fracture, and Fatigue
Mechanics of Structures

Graduate students supervised

	<i>Degree</i>	<i>Last known position</i>
1992	Chung-Lian Lin MS Civil Engineering	Private sector (Taiwan)
1993	Ali Imam PhD Mechanical Engineering	Lecturer (UC Berkeley)
1995	John Kisiday MS Mechanical Engineering	Private sector (USA)
1996	Joseph C. Nadeau PhD Civil Engineering	Asst. Prof. (Duke University)
1996	Amir Nashat MS Materials Science	Venture capitalist
1996	Derek J. Hansford MS Materials Science	Assoc. Prof. (Ohio State University)
1996, 1999	Malisa MS, PhD	
	Sarnitinoranont Mechanical Engineering	Assoc. Prof. (U Florida)
1996	Kevin Mon PhD Materials Science	Private sector (USA)
1997	Ruby Chin MS Civil Engineering	Peace Corps
1998	Tejal Desai PhD Bioengineering	Prof. (UCSF/UC Berkeley)
1998	Yuchun Wang PhD Materials Science	Private sector (USA)
1998	Lawrence Kulinsky PhD Materials Science	Staff scientist (LBNL)
1998	Derek J. Hansford PhD Materials Science	Assoc. Prof. (Ohio State Univ.)
1998	Miqin Zhang PhD Materials Science	Prof. (Univ. Washington)
1999	Ofer Matalon PhD Biophysics	Intellectual property law

Postdoctoral researchers and staff scientists supervised

	<i>Last known position</i>
Francis J. Rooney, PhD (Theoretical Mechanics)	Private sector (USA)
Vladimir T. Granik, PhD (Discrete/Continuum Mechanics)	Retired
Tony Huen, PhD (Electrical Engineering)	Retired
Marianna Aita, MD (Immunology)	Oncologist (Univ. Udine Italy)
Aida Kadic-Galeb, PhD (Mathematics)	Assoc. Prof. (Univ. Missouri)
Luca Lutterotti, PhD (Materials Science)	Prof. (Univ. Trento Italy)
Makarand Paranjape, PhD (Electrical Engineering)	Assoc. Prof. (Georgetown U.)
Wen-Hua Chu, PhD (Electrical Engineering)	Private sector (USA)
Jay Tu, PhD (Electrical Engineering)	Private sector (USA)
Nicola Marzari, PhD (Physics)	Assoc. Prof. (MIT)

Ohio State University*New classes devised and instituted*

1999	Soft Tissue and Functional Biomaterials
2000	Tissue Biomechanics
2000	Introduction to Cardiovascular Bioengineering
2001	Biomedical Nanotechnology
2002	Introduction to Medical Technology

Other classes taught

2002	Introduction to Biomedical Engineering
2002	Medical Humanities: End of Life Module
2002	Medical Humanities: Bioethics Module

Graduate students supervised

		<i>Degree</i>
2001, 2002	Jun Liu	MS, PhD Biomedical Engineering
2005	Jason Sakamoto	PhD Biomedical Engineering
2005	Piyush Sinah	PhD Electrical Engineering

Last known position

Postdoctoral researcher (OSU)
 Researcher manager (UTHSC)
 Staff scientist (Intel)

International degrees supervised

2000	Nicolas Szita	PhD, ETH Zurich, Switzerland
2002	Andrea Carbonaro	Dott. Ing., Polytechnic U, Turin
2002	Medea Nocentini	Dott. Ing., Polytechnic U, Turin
2003	Bruno Balocco	Dott. Ing., Polytechnic U, Turin
2004	Zhang Hongye	Nanyang Tech. U. (NTU), Singapore

Last known position

Prof. (DTU Denmark)
 PhD awarded (UC Berkeley)
 MBA awarded (Columbia U)
 Staff scientist (Turin)
 PhD student (NTU)

Postdoctoral researchers, visiting and staff scientists supervised

Robert Crane, PhD (Electrical Engineering)
 Jennifer R. Lewis, PhD (Biophysics)
 Nicanor Moldovan, PhD (Biophysics)
 Samir Khouri, M.D. (Cardiology)
 Medea Nocentini (Mechanical Engineering)
 Andrea Carbonaro (Mechanical Engineering)
 Bruno Balocco (Mechanical Engineering)
 Michael Sprintz, MD (Anesthesiology)
 Prof. Jing Fang, PhD

Last known position

Staff scientist (US Air Force)
 Asst. Prof. (Ohio State U)
 Asst. Prof. (Ohio State U)
 Cardiology Fellow (Ohio State U)
 Private sector
 PhD student (UC Berkeley)
 Staff scientist (Turin Polytechnic)
 Resident (USF)
 Prof./Chair., Dept. Mech. Engr.
 (Univ. Beijing, China)

Sadhana Sharma, PhD (Biomedical Engineering)

Postdoctoral researcher
 (UI Chicago)

Jun Liu, PhD (Biomedical Engineering)
 Jason Sakamoto, PhD (Biomedical Engineering)
 Paolo Decuzzi, PhD (Mechanical Engineering)
 Jasper Nijdam, PhD (Cancer Nanotechnology)
 Ming-Cheng Cheng, PhD (Cancer Nanotechnology)
 Giuseppe Gentile (Mechanical Engineering)

Asst. Prof. (Ohio State U)
 Research manager (UTHSC)
 Assoc. Prof. (UNG Italy)
 Asst. Prof. (U Maryland)
 Asst. Prof. (UTHSC)
 Postdoctoral researcher
 (UMG Italy)

Carlo Cosentino, PhD (Electrical Engineering)
 Antonella Centonze, MD (Surgery)
 XueWu Liu, PhD (Electrical Engineering)

Asst. Prof. (UMG Italy)
 Practicing physician (Italy)
 Asst. Prof. (UTHSC)