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EDUCATION

- *Postdoc*, Mechanical Engineering, University of California, Los Angeles (1995)
- *Postdoc*, Institute of Metal Research, Chinese Academy of Science, (1991)
- *Ph.D.*, Mechanical Engineering, Tsinghua University, Beijing, China. June 1989.
- *M.S.* Metallurgical Engineering, Shenyang University of Technology, Shenyang, China. June 1985.
- *B.S.* Metallurgical Engineering, Shenyang University of Technology, Shenyang, China. July 1982.

EXPERIENCE

- Professor, Mechanical, Materials and Aerospace Engineering Department, University of Central Florida (UCF), 2010-
- Professor, NanoScience and Technology Center, Secondary Joint Appointment, University of Central Florida (UCF), 2010-
- Professor, Materials Science and Engineering Department, UCF, 2012-
- Hai-Tian Scholar on Nanomechanics, Visiting Professor, Dalian University of Technology, China, 2008-2010
- Associate Professor, Mechanical, Materials and Aerospace Engineering Department, University of Central Florida (UCF), 2006-2009
- Associate Professor (secondary jointed appointment), NanoScience and Technology Center, University of Central Florida (UCF), 2008-2009
- Program coordinator of Miniature Engineering System program, 2002-present
- Affiliated faculty, Advanced Material Processing and Analysis Center, University of Central Florida (UCF), 2001-
- Assistant Professor at UCF, Spring 2001-2005
- Research Assistant Professor at UCLA, 2000
- Research scientist at UCLA, 1996-2000
- Professor at the Institute of Corrosion and Protection of Metals, Chinese Academy of Science, 1995
- Associate Professor, Institute of Corrosion and Protection of Metals, Chinese Academy of Science, 1992-1995
- Visiting Professor, Department of Physics, University of Bologna, Italy (1994)
- Visiting Professor, Institute of Strength Physics and Material Science, Russia Academy of Science (1992)
- Postdoctoral Fellow, Institute of Metal Research, Academia Sinica, China, 1989-1991
- Lecture, Department of Metallurgical Engineering, Shenyang University of Technology, Shenyang, China. June 1985 to March 1986.

HONORS AND AWARDS

- Fellow, ASME 2013
- Excellence in Graduate Teaching Award, University of Central Florida, 2009
- Graduate Teacher of the Year, College of Engineering and Computer Science, 2008
- Graduate Teacher of the Year, MMAE Department, 2008
- Hai-Tian Scholar on nanomechanics, Dalian University of Technology, 2008
- Visiting Professor Award from the National Research Council (CNR) of Italy, September 1994.
- Young Investigator award, China Advanced Committee “863”, 1993
- Excellent Young Scientist Award, Chinese Academy of Science, Shenyang Branch. October 1993.
- Excellent paper award, one of 50 nationwide for postdoctoral fellows, one of two in materials science nationwide. September 1993, Beijing, China.
- 1995, visiting scholar award by Chinese Academic of Science

I. RESEARCH EXPERIENCE

I.1 Research Interests

The *primary area* of research is synthesis and manufacturing of multifunctional nanomaterials: 1) Carbon nanotube (CNT) metal nanocomposite (metal/CNT) including copper (Cu/CNT) nanocomposite. In comparison to pure Cu, the patented Cu/CNT nanocomposite produces a 200% greater in electric conductivity, 180% greater in thermal conductivity and 300% greater in tensile strength. The work has been supported by NSF, Siemens Energy and the International Copper Association (ICA) to develop revolutionary Cu/CNT to replace copper as novel energy efficient conductor to significantly reduce energy consumption (by 50%) and to increase efficiency of electrical systems (allowing larger current), and to significantly enhance reliability. 2) Nanomaterials for chemical sensors. 3) Biocompatible materials including PDMS, 4) mechanics of nanomaterials.

The *secondary area* of research is micro/nano systems including: 1) micro chemical sensors enhanced by nanomaterials able to detect H^2 , H_2S , CO, NO_x to largely increase the sensitivity and reduce the cost of fabrication/maintenance; 2) robust microvalves able to support large pressure (>10MPa) and manipulate large flow rate (>10cc/s); 3) programmable microfluidic system as platform for biosensors, realized by thermal pneumatic and electrostatic actuation; 4) novel thermal interface material (TIM) made of SnBi/CNT paired with Cu/CNT as heat spreader (high thermal conductivity and low thermal expansion coefficient); 5) nanoscale interconnects made of Cu/CNT nanowire with largely increased conductivity .

I.2 Summary of Recent Research Accomplishments:

(1) Nanomaterials

Copper's resistive heating wastes electricity about \$300B/year in US along. Better conductive materials are needed to reduce the energy consumption. Energy sustainable

materials such as superconductors are the “dream” solution to conserve energy. However, current superconductors require very low temperature that is not practicable for most applications. Dr. Chen has proposed a new theory to reduce Cu’s resistivity by nanoengineering with carbon nanotube (CNT), that CNTs act as better electron “tunnels” to reduce scattering, since CNTs have 700 times greater mean-free-path than copper. Since 2004, Dr. Chen has received 5 NSF awards to study different phenomena with total funding of about \$1.163M. One US patent has been awarded in 2010 and another one is pending. DOE (Basic Science) has invited him for a full proposal submission. Recently the International Copper Association (ICA) has contracted a England consulting company to conduct a independent study on nano carbon reinforced copper work internationally and Dr. Chen's work has been identified as a "game changer" and fund Dr. Chen's work since 2012, without requesting a proposal. ICA has a plan to build a "Pilot Plant" based on this technology with a current planed budget of \$86M. Achieved results in comparison to Cu include: 1) electrical conductivity (inverse of resistivity) is 200% greater; 2) thermal conductivity is about 180% greater; 3) tensile strength is more than 300%; 4) thermal expansion coefficient is about 60% lower. All these results are the first time discoveries. Only 2 % (volume fraction) CNTs is added, the cost is about 4% higher than Cu. Therefore, it is very promising to replace Cu to largely reduce energy consumption and increase the efficiency of various electrical systems.

(2) *Mechanics*

How to control mechanical properties of nanocomposites has been a challenge to the community for more than 15 years. Dr. Chen has developed a new law of mixtures that replaces the old law which is only valid for conventional composites. Dr. Chen has verified the theory experimentally that mechanical strength of metallic nanocomposites reinforced by carbon nanotubes is 300% greater than that of pure metals. The efficiency is 10 times better than the best of previously published data. The work is currently supported by NSF. Biocompatible polymer membranes such as polydimethylsiloxane (PDMS) are important to bioassays and biomedical systems. However, the reliability of polymer membranes remains as an issue. Dr. Chen has demonstrated that both the mechanical strength and the thermal decomposition temperature of PDMS membranes are inversely dependent on the thickness and that the transition from bulk to scale-dependent is about 200 μ m.

(3) *Microsystems*

Dr. Chen has developed a universally programmable microfluidic system which is critical for biosensors, drug delivery and drug development. Dr. Chen has also developed a novel separator/condenser for biological assays by combining microscale dielectrophoresis with Taylor-Couette flow to achieve efficient biological separation/concentration from large-volume contaminated sources. This work is supported by the Army. Dr. Chen’s group has also made substantial breakthrough in micromachined chemical sensors, and robust microvalves supported by DARPA. Has developed novel deformable micromirrors with large stroke and fast response.

I.3 Sponsored Research

1. Fabrication of Copper Nanocomposite, International Copper Association, Quanfang Chen, **PI** (100%), \$232,000, February 2012-December 2013
2. Demonstration of a Prototype Silicon Immersion Grating for the NASA SOFIA Mission, Jian Ge (UF), David Tanner (UF), Quanfang Chen (UCF), and Bo Zhao (UF), \$76,000, Florida Space Initiative Program, February 2013- January 2014
3. Manufacture of Electrical Conductive Nanocomposites, National Science Foundation, Quanfang Chen, **PI** (100%), \$338,000, May 2011-April 2014.
4. BiSn/CNT Nanocomposites as Novel Thermal Interface Material, National Science Foundation, Quanfang Chen, **PI** (100%), \$300,000, September 2010-August 2014.
5. High Conductive Copper Composite, Siemens Energy, Quanfang Chen, **PI** (100%), \$170,000 (cash) and \$225,000 (in-kind), November 2009-October 2011.
6. Supplement award to Reinforcing Mechanisms of Carbon Nanotube Metallic Nanocomposites, National Science Foundation (NSF), Quanfang Chen, **PI** (100%), \$68,551 August 2009-April 2012
7. Reinforcing Mechanisms of Carbon Nanotube Metallic Nanocomposites, National Science Foundation (NSF), Nano&Bio Mechanics Program, Quanfang Chen, **PI** (100%), \$225,000, May 2007-April 2012
8. Fabrication of Cu/CNT wire, I-4 award, Quanfang Chen, **PI** (100%), \$56,666, June 2011
9. Equipment award, University of Central Florida, Quanfang Chen, **PI** (100%), \$110,000, October 2010 June 2011.
10. Fabrication of Innovative Cu/CNT Nanowires, National Science Foundation (NSF), Quanfang Chen, **PI** (100%), \$100,000, February 2008-July 2009
11. Development of Customer Programmable Microfluidic System for Biosensors", US Army, Quanfang Chen, **PI** (100%), \$200,000, December 2007 to September 2009
12. Ultraconductive Nanocomposite Wire for Advanced Electric generator, Siemens AG Power Generation's Emerging Technologies Program, Quanfang Chen, **PI** (100%), \$50,000, June 2007-August 2008
13. Ultraconductive Nanocomposite Wire for Advanced Electric generator, Florida High Tech Corridor Industry Matching Research Program, Quanfang Chen, **PI** (100%), \$25,000, June 2007-May 2008.
14. Development of Customer Programmable Microfluidic System for Biosensors Including the "Taste Chip", US Army, Quanfang Chen, **PI** (100%), \$200,000, September 2006-August 2007, with extension to August 2008
15. Development of a Large Format and Stroke MEMS Deformable Mirror for Direct Imaging of Extrasolar Planets, Florida Space Research Program, Quanfang Chen, **PI** (60%), Jian Ge (Co-PI), \$225,000, July 2007-June 2008.
16. Novel Brush Plating for *In Situ* Fabrication of Metallic Nanocomposites, National Science Foundation (NSF), Quanfang Chen, **PI**(100%), \$156,000, May 2004 to April 2007
17. Reinforcing Mechanisms of Carbon Nanotube Metallic Nanocomposites, University Matching Fund for Federal Agencies Program, Quanfang Chen, **PI**(100%), \$26,846. May 2007-April 2010.
18. A Reliable, Effective and Compact Reverse Turbo Bryaton Cryocooler (RTBC) for Storage and Transport of Hydrogen in Spaceport and Space Vehicle Application, Louis Chow, Jay Kapat, Chan Hamm, Kalpathy Sundaram, Thomas Wu, Quanfang

- Chen, Co-PI (15%), Linan An, NASA/FSEC, \$794,793, June 2002 to September 2007.
19. Development of Extremely High Dispersion Silicon Immersion Gratings for NASA Space Missions, Florida Space Research Initiative Program, Quanfang Chen (**PI** 50%), Jian Ge (Co-PI), \$160,000, November 2005 to June 2006
 20. Novel Brush Plating for *In Situ* Fabrication of Metallic Nanocomposites, Matching Funding for Federal Agencies Program, Quanfang Chen, **PI**(100%), \$12,928. May 2004-April 2006.
 21. Nanocomposite structures with internal volumes for convective heat transfer, Rini Technologies Inc/Navy SBIR/STTR Phase I Program, Quanfang Chen (**PI**(60%)), Louis Chow (Co-PI), \$45,000 (UCF portion), March 2005-March 2006.
 22. Rapid Prototyping and Packaging of Microsystems for Interdisciplinary Research, Xun Gong (PI), John Shen, Peter Yuan and Quanfang Chen (Co-PI 20%), \$160,000, Presidential Initiative to Fund Major Research Equipment, January 2006-June 2006
 23. Novel Nanomaterials Synthesis and Thermal Analysis System for Miniature Engineering System Development, Quanfang Chen, **PI** (100%), \$30,200, Presidential Initiative to Fund Major Research Equipment, January 2005-June 2005.
 24. Development of Integrated Microfluidic Systems with an “Electronic Taste Chip” for Application in Novel Reagentless Assay for the Detection of Pathogenic Bacteria, UCF In-House Program, Quanfang Chen, **PI** (100%), \$7,500, May 2004 to April 2005.
 25. Robust Self-assembled MEMS Valves and Compact Piezoelectric Pump For Space Fluid Management, Florida Space Research Initiative Program, Quanfang Chen, **PI** (70%), Siddharth Thakur, \$112,000, November 2003 to June 2004.
 26. Development of carbon nanotube (CNT) reinforced copper composite as heat spreader for high power amplifier devices, Rini Technologies Inc/MAD SBIR/STTR Phase I Program, Quanfang Chen, **PI** (60%), Louis Chow, \$45,000 (UCF portion), May 2004-November 2004.
 27. A Miniaturized Protein Expression System for Monitoring Toxins in Space Missions, Florida Space Research Initiative Program, Quanfang Chen, (**PI** of UCF, 50%), Hugh Fan (PI of UF), \$125,000, November 2003 to June 2004.
 28. Development of Robust Self-assembled Solid Metallic MEMS Valves for Compact Piezoelectric Pump, DARPA STTR Phase III/Kinetic Ceramics Inc., Quanfang Chen, **PI**(100%), \$123,419 (UCF portion), January 2004 to December 2004.
 29. MEMS based chemical sensors, Tyco Internationals Inc, Safety Products, Quanfang Chen, **PI** (100%), \$8,000, January 2004 to June 2004.
 30. Development of a Microfluidic System for “Taste Chip” Applications, US Army/University of South Florida Center for Biological Defense (CBD), October 2002-september 2003, Quanfang Chen, **PI**(40%), Jay Kapat, Louis Chow, \$124,741, 2004
 31. Microinterlocking Mechanisms for Inchworm Motors, DARPA/UCLA, November 2001, Quanfang Chen, **PI** (100%), \$47,527.
 32. Micro/Nano Scale Mechanical Testing System, UCF Presidential Equipment Program, March 2002, Quanfang Chen, **PI**(100%), \$46,000.

33. Highly Sensitive doped Nanocrystalline Metal Oxides Gas Sensors, UCF In-house program, Sudipta Seal, Quanfang Chen, **Co-PI(50%)**, \$15,000, May 2002 to April 2003.
34. Development of microvalves, UCLA/DARPA, May 2002-December 2002, Quanfang Chen, **PI (100%)**, \$14,629.
35. Piezoelectric Pump Utilizing Innovative Micro Mechanical Valves, DARPA/KCI STTR Phase II, Quanfang Chen, **PI(100%)**, \$81,000 (UCF portion), April 2001 to October 2002.
36. UCF Matching of DARPA project, Quanfang Chen, **PI (100%)**, \$3,250, May 2001.
37. Development of Recuperative Micro Heat Exchanger Components, May 02-December 02, Reni's Technologies, Inc, Quanfang Chen, **PI(80%)**, Linan An, \$20,000, May 2002 to December 2002.
38. Balance award, UCF Office of Research, Quanfang Chen, **PI(100%)**, Office of Research, \$26,768, 2003
39. High-Resolution Bulk Silicon Based CMOS-MEMS Integrated Three-Axis Gyroscope for Space Applications, Space Research Initiative Program, Quanfang Chen, **PI(50%)**, Huikai Xie, Peter Yuan, Mark Shaplak, Toshikazu Nishida, \$170,000 (UCF-UF), November 2002 to June 2003.

Total of funded projects at **UCF along: >\$4.7M.**

Pending Proposals:

1. EAGER: Photovoltaic Sustained Electrochemical Synthesis of Hybrid Metal/CNT Nanowires, National Science Foundation, Quanfang Chen (100%), \$100,000, January 1, 2014 -December 31, 2014
2. Polymer Elastomer Nanocomposite cMUTs, NIH, \$367,706, Quanfang Chen (PI),
3. Aluminum Nanocomposite, Quanfang Chen, National Science Foundation \$437,732, June 2014 to May 2017
4. Fundamental Study of Hybrid CNT/Metal Nanowires, Quanfang Chen (PI), National Science Foundation, \$426,132, June 2014-May 2017.
5. Room Temperature Conductive Metallic Nanocomposites with ultrahigh Conductivities, Department of Energy, Quanfang Chen (PI), \$632,707 2014-2017
6. Sensitive and Resilience CMUT Transducer, Quanfang Chen (PI), National Science Foundation, \$426,445, September 2014-August 2017.
7. Interfacial Effects of Carbon Nanofibers Reinforced Nanocomposites, Quanfang Chen (PI), National Science Foundation, \$426,132, June 2014-May 2017.
8. Interaction between metallic bond and Pi bond and the resultant material physical properties, Department of Energy, Basic Science Division, Quanfang Chen (PI), \$665,953, September 2014-August 2017.
9. Engineering Research Center for Energy-Efficient Electrical Systems (CE³S), NSF, Quanfang Chen (PI), together with other 15 faculties, preproposal.

Recently declined proposals:

10. Autonomous two-phase flow cooling by the Integration of Passive and Active flow control, Quanfang Chen (PI), Shawn Putnam (Co-PI), Raganganthan Kumar

- (Co-PI), Yuanli Bai (Co-PI), DARPA, \$3,779,436, 03/01/13 – 02/29/15, invited full proposal submission.
11. Innovative Manufacture of Energy Efficient Electric and Thermal Conductive Nanomaterials, Quanfang Chen (PI, 65%), Michael Leuenberger (Co-PI), Yuanli Bai (Co-PI), Department of Energy, \$7,110,075. Invited full proposal submission.
 12. Center for Energy Efficient Conductive Materials (EECM), Quanfang Chen, Gang Chen, Zhengfu Ren, Masa Ishigami, Michael Leuenberger, and other 15, NSF Science and Technology Program, \$23,881,000, 2013-2018. Was reviewed and ranked among the top 40 nationwide.

Laboratory Development

Dr. Chen has developed a MEMS and Nanomaterials lab at UCF, started from zero. The lab is designed for MEMS and nanomaterials design, fabrication and characterization.

- Established a micro MEMS performance characterization laboratory. It includes microscopes and probe stations, chemical gas sensor characterization facility, laser vibration measurement, LABVIEW VIRTUALBEMCH test design, data and image acquisition facility.
- Developed a micro mechanical test system. It can perform tensile, bending, friction and wear as well as fatigue test. The system is basically a MTS Tytron Micro Force Tester, but Dr. Chen has modified it to have the tribology test capability.
- Developed a new cleanroom equipped with fabrication (micro and mesoscale) facility using nanostructured material for MEMS. The facility including a photolithography mask aligner, photo resist spinner and baking facility, wet etching facility, physical vapor deposition equipment for metals, physical vapor deposition equipment for polymers, reactive ion etching equipment, UV-LIGA facility, chemical mechanical polish (CMP) facility, dicing saw for MEMS and IC devices, and three-in-one CNC machine.
- MEMS design and analysis facility, including COMSOL Multiphysics package, L-Edit MEMS design software, LINKCAD MEMS design analysis software, and multiple computers.
- Quantum Mechanics calculation cluster for modeling of nanomaterials and electronic systems

I.4 Publications

Published Peer Reviewed Journal Papers (selection):

1. Chengyu Yang and Quanfang Chen, Tuning semiconducting carbon nanotube towards/to metallic by adsorbed copper atoms, *Applied Physical Letters*, submitted.
2. Liangfu Zheng, Jenny Sun and Quanfang Chen, Novel two-step fabrication and the microhardness of carbon nanotubes reinforced copper nanocomposite, *Advanced materials*, submitted.
3. Chengyu yang and Quanfang Chen, The effect of end geometry on the electrical contact resistance of the carbon nanotube(10,0)/Cu interfaces, *Applied Physical Letters*, to be submitted.
4. Chengyu Yang and Quanfang Chen, Electronic structures and the transport properties of carbon nanotube adsorbed with aluminum chains, finished and pending to be submitted.
5. Chengyu Yang and Quanfang Chen, The influence of the interaction between CNT and clamped Cu chain on the electronic structure and transport properties of Cu-clamped-CNT systems, finished and to be submitted.
6. Shenghong Zhang and Quanfang Chen, Fabrication of MWCNT incorporated lead-free Sn-Bi composite, *Composites Part B* 58C (2014), pp. 275-278 DOI information: 10.1016/j.compositesb.2013.10.044.
7. Chengyu Yang and Quanfang Chen, Electronic structure and transport of carbon nanotube adsorbed with a copper chain, *International Journal of Smart and Nano Materials*, 2013 <http://dx.doi.org/10.1080/19475411.2013.782906>
8. Yitian Peng and Quanfang Chen, Fabrication and characterization of crystalline copper nanowires by electrochemical deposition inside anodic alumina template, *Chinese Science Bulletin*, September 2013 Vol.58 No.27: 3409-3414, doi: 10.1007/s11434-013-5965-1
9. Chengyu Yang and Quanfang Chen, Electric resistance of carbon nanotube with a Cu chain: A First-Principle calculation, *Journal of Nanoengineering and Nanosystems*, September 2013 vol. 227 no. 3 115-119.
10. Yitian Peng, Quanfang Chen, Fabrication of one-dimensional Ag/multiwalled carbon nanotube nano-composite *Nanoscale Research Letters*, 2012,7:195 doi:10.1186/1556-276X-7-195
11. Shenghong Zhang and Quanfang Chen, Fabrication of Pb-free Sn-Bi solder using Polyoxyethylene Lauryl Ether, *Advanced Materials Research*, Vol. 569 (2012) pp 159-163.
12. Yitian Peng, Quanfang Chen, Fabrication and Characterization of Cu/MWCNT Hybrid Nanowires Activated with Ag Nanoparticles, *Journal of Electrochemical Society*, 2011, Volume 159, Issue 2, Pages D72-D76.
13. Yitian Peng and Quanfang Chen, Simplified fabrication and electrical analysis of crystalline silver nanowire, *Appl Phys A* (2011) 105:841–846, DOI 10.1007/s00339-011-6635-2
14. Quanfang Chen, Greg Carman, Friction between Micromachined Surfaces, *Sensors and Actuators A*, submitted.
15. Yitian Peng, Ke Huang, and Quanfang, Fabrication of Cu nanowires using aluminum anodic oxide, *Nanotechnology*, submitted.
16. Ke Huang and Quanfang Chen, Fabrication of Al/CNT nanocomposite by electrochemical co-deposition, *Journal of Composite Materials*, submitted.
17. Nangang Wang, Jian Ge and Quanfang Chen, Polishing thick silicon wafers for high

- resolution silicon grating, *Sensors and Actuators A*, submitted.
18. Jianwei Gong, Quanfang Chen, TSK model for chemical sensor arrays, *Sensors and Actuators B*, revision submitted.
 19. Quanfang Chen, Factors affecting strength of nanofiber reinforced nanocomposites, *Applied Physics Letters*, submitted.
 20. Guangyu Chai and Quanfang Chen, “Characterization of Thermal conductivity of Carbon Nanotube Reinforced Copper Composite”, *Journal of Composite Materials*, September 2010, doi: 10.1177/0021998310371530
 21. Ying Sun, Quanfang Chen, diameter dependent mechanical strength of carbon nanotubes reinforced composite, *Applied Physics Letters*, 95 (2009), 021901-021903.
 22. Miao Liu, Jianren Sun, Ying Sun, Christopher Bock, and Quanfang Chen, Thickness of polymer membranes influences mechanical strength and thermal stability, *Journal of Micromechanics and Microengineering*, 19 (2009) 035028.
 23. Miao Liu and Quanfang Chen, Influence of microfabrication on mechanical properties of PDMS, *Sensors and Actuators B (Chemical)*, accepted and under revision.
 24. Yitian Peng, Quanfang Chen, Ultrasonic-assisted Fabrication of Highly Dispersed Copper/Multi-walled Carbon Nanotube Nanowires, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 343 (2009), 132-135.
 25. Yitian Peng, Quanfang Chen, Synthesis of Copper/Multi-walled Carbon nanotube hybrid nanowire in microfluidic reactor, *Nanotechnology*, 20 (2009), 235606.
 26. Miao Liu and Quanfang Chen, Influences of heating temperature on mechanical strength of PDMS, *Sensors and Actuators A (Physical)*, doi:10.1016/j.sna.2009.02.016
 27. Guangyu Chai, Ying Sun, Jianren Sun and Quanfang Chen, Mechanical properties of carbon nanotube – copper nanocomposites, *J. Micromech. Microeng.* 18 (2008) 035013, doi: [10.1088/0960-1317/18/3/035013](https://doi.org/10.1088/0960-1317/18/3/035013)
 28. Jianwei Gong, Jianren Sun and Quanfang Chen, Micromachined Sol-gel Carbon Nanotube/SnO₂ Hydrogen Sensor, *Sensors and Actuators B (chemical)*, Volume 130, (2008), Pages 829-835
 29. Ying Sun and Quanfang Chen, “Mechanical Behavior of Ni/CNT Nanocomposites”, *Nanotechnology* 18 (2007) 505704, doi:10.1088/0957-4484/18/50/505704.
 30. Miao Liu, and Quanfang Chen, Characterization of Bonded and Unbonded PDMS for BioMEMS Applications, *Journal of Micro/Nanolith. MEMS MOEMS* 6, 023008 (2007)
 31. Bo Li and Quanfang, “Development of Robust Microvalves for Compact Robust Pumps/Hydraulic Actuators”, *Solid State Phenomena*, vol. 121-123 (2007) 1207-1210.
 32. Bo Li and Quanfang Chen*, Solid Micro Mechanical Valves Fabricated with In Situ UV-LIGA Assembled Nickel, *Sensors and Actuators A (Physical)*, Volume 126, Issue 1 , 26 (2006), Pages 187-193
 33. Jianwei Gong and Quanfang Chen, Developing Nanostructured Semiconductor Metal Oxide Miniature Gas Sensors towards Applications, *Sensors and Materials*, Volume 18, No. 4 (2006) 183-197.
 34. Jianwei Gong, Quanfang Chen, Ming-Ren Lian, Nen-Chin Liu, Roberts G. Stevenson, Micromachined Nanocrystalline Silver Doped SnO₂ H₂S Sensor, *Sensors and Actuators B (Chemical)*, Vol 114/1 (2006) pp 32-39. DOI: 10.1016/j.snb.2005.04.035.
 35. Quanfang Chen, Guangyu Chai, and Bo Li, “Exploration Study of Multifunctional Metallic Nanocomposite Utilizing Single Walled Carbon Nanotubes for Micro/nano devices”, *Journal of Nanoengineering and Nanosystems*, 219(2006), 67-72

36. Jian-Wei Gong, Quan-Fang Chen*, Ming-Ren Lian, Nen-Chin Liu, Claude Daoust, Temperature Feedback Control for Improving Stability of SMO (Semiconductor Metal Oxide) Gas Sensor, *IEEE Sensors Journal*, vol. 6 (2005), 139-145.
37. Bo Li, Sal Gerace and Quanfang Chen, Design and Fabrication of Robust In situ UV-LIGA assembled Nickel Micro Check Valves for Compact Hydraulic Actuators, *Journal of Micromechanics and Microengineering*, Institute of Physics Publishing, 15 (2005) 1864-1871.
38. Bo Li, Miao Liu and Quanfang Chen, Low-stress Ultra-thick SU-8 UV Photolithography Process for MEMS, *Journal of Microlithography, Microfabrication, and Microsystems*, Volume 4 (2005), 043008
39. Quanfang Chen, Exploration Study of Multifunctional Metallic Nanocomposite Utilizing Single Walled Carbon Nanotubes for Micro/nano devices, *Journal of Nanoengineering and Nanosystems*, vol. 219, (2005), 67-72.
40. Bo Li and Quanfang Chen, Dong-Gun Lee, Jason Woolman, and Greg P. Carman "Development of Large Flow Rate, Robust, Passive Micro Check Valves for Compact Piezoelectrically Actuated Pumps", *Sensors and Actuators A (Physical)*, Volume 117, Issue 2, 14 January 2005, Pages 325-330.
41. Jian-Wei GONG, Quan-Fang CHEN, Ming-Ren LIAN, Nen-Chin LI; Overview of Environmental Influences on Semiconductor Metal Oxide Sensors' Performance, *Sensors & Transducers*, Vol. 54 (2005), pp. 310-319.
42. Jianwei Gong, Quanfang Chen, Weifeng Fei, and Sudipta Seal, Micromachined Nanocrystalline SnO₂ Chemical Gas Sensors for Electronic Nose, *Sensors and Actuators B (Chemical)*, Vol 102/1 (2004), pp 117-125
43. Min Hu, Hejun Du, Shih-Fu Ling, Yongqing Fu, Quanfang Chen, Louis Chow and Bo Li, A silicon-on-insulator based micro check valve, *Journal of Micromechanics and Microengineering*, Institute of Physics Publishing, 14 (2004) 382-387
44. Lung-his Chu, Quanfang Chen, and Greg Carman, Strength Predictions for Interlocking Microridges Fabricated with Different Geometries, *Journal of Microelectromechanical Systems*, vol. 10 (2001), 310-316.
45. Quanfang Chen, Da-Jeng Yao, C-J Kim, and Greg P. Carman, Investigation the Influence of Fabrication Process and Crystal Orientation on Shear Strength of Silicon Microcomponents, *Journal of Materials Science*, 35 (21):5465-5474, November 2000.
46. Quanfang Chen, Da-Jeng Yao, C-J Kim, and Greg P. Carman, Mesoscale Actuator Device: Micro Interlocking Mechanism to Transfer Macro Load, *Sensors and Actuators A (Physical)*, vol. 73 (1999) pp.30-36.
47. Quanfang Chen, Da-Jeng Yao, C-J Kim, and Greg P. Carman, Development of Mesoscale Actuator Device with Micro Interlocking Mechanism, *Journal of Intelligent Materials and Systems Structures*, vol. 9 (1998), pp. 449-457.
48. X. Peng, L. Zhou, T. Li, Q. Chen, and X. Ma, A Low Oxygen Partial Pressure Apparatuses and its Application on the Study of Selective Oxidation of Binary Alloys, *Journal of Chinese Society for Corrosion and Protection*, 16(2),144 (1996).
49. X.Q. Ma, M.S. Li, Q. Chen, and T.F. Li, Study on Oxidation Kinetics of α -Al₂O₃ Oxide Scale by Measuring Atomic Concentration Energy, *Transaction of Nonferrous Metal Society of China*, vol.5(1995), pp.73.
50. Ma Xinqing; Li Meishuan; Peng Xiao; Chen Quanfang, Effect of CeO₂ Dispersion on Initial Stage Growth of Alpha -Al₂O₃ Oxide Scale at High Temperature, *Acta*

- Metallurgica Sinica*, vol.31, (no.9, 1995):B399-405 (Metal Abstracts, Chemical Abstracts).
51. X. Peng, X. Ma, Q. Chen, D. Ping, T. Li, and W. Wu, The oxidation behavior and mechanism of La₂O₃ electrodeposited composite film, *Journal of Chinese Rare Earth Society*, 13(1995) 328-33 (Chemical Abstracts).
 52. X. Peng, D. Ping, T. Li, Q. Chen, and M. Li, Oxidation of Ni₂₀Cr alloy treated with Ce Ion Implantation, *Journal of Chinese Rare Earth Society*, 13(1995), 245-249 (Chemical Abstracts).
 53. Chen, Quanfang; Peng, Xiao; Ma, Xingqing; and Li, Tiefan; Thermal Stress Analysis of ceramic Thermal Barrier Coatings Under Loading, *Journal of Corrosion Science and Protection Technology*, Vol.6, No.1, January 1994, pp53-57.
 54. X.Q. Ma, X. Peng, M.S. Li, Q. Chen, and T.F. Li, Influence of Oxide Particles on Diffusion in a Two-phase Coating at High Temperature, *Journal of Corrosion Science Protection Technology*, vol.6(1994), 29-35 (Chemical Abstracts).
 55. X. Peng, X. Ma, Q. Chen, and T. Li, Oxidation of B-NiAl Coating with Ion Implantation of Mg, *Journal of Corrosion Science and Protection Technology*, vol.6 No.1, January 1994, pp92-95 (Metals Abstracts).
 56. Chen, Quanfang, Li, Tiefan Li, Synthetic Analysis of Failure of Guide Vane of Turbine, *Materials Engineering*, No. 5 May 10, 1993, pp35-37 (EI).
 57. X. Peng, D. Ping, T. Li, Q. Chen, M. Li, and W. Wu, Oxidation Mechanism of Ni₂₀Cr Alloy with Ce Ions Beam Mixing Implantation, *Journal of Chinese Rare Earth Society*, 12(4) 328(1994).
 58. X. Peng, X. Ma, T. Li, Q. Chen, and L. Zhou, Effect of Y or Mg Ion Implantation on the Oxidation Behavior of B-NiAl Aluminum-diffusion Coating, *Journal of Chinese Rare Earth Society*, 12(1994), 328-331(Chemical Abstracts).
 59. Q.F. Chen, S.K. Fan, J.B. Gong, and T.F. Li, High Temperature Cyclic Oxidation Behavior of Ceramic Thermal Barrier Coating, *Material Science Progress*, vol.6, No. 5, October 1992, pp414-418 (Engineering Index).
- (Some old journal papers written in Chinese are not included since they are not able to be found from here-US).***

Published Peer Reviewed Conference Proceedings Papers (selection):

Highly competitive conference proceedings papers

60. Chengyu Yang and Quanfang Chen, Electric resistance and transport study of carbon nanotube with a Cu chain: A First-Principle calculation, MRS Spring Meeting, San Francisco, March 2013
61. Chengyu Yang and Quanfang Chen, Electric Transport of Carbon Nanotube With a Copper Chain - a Study by First Principle Calculation, Plasticity 2013, Bahamas, January 4-8, 2013.
62. Shenghong Zhang and Quanfang Chen, Fabrication of Pb-free Sn-Bi solder using Polyoxyethylene Lauryl Ether, International Conference on *Advance Materials Design and Mechanics (ICAMDM2012)*. Xiamen, China Jun.5-7, 2012
63. Quanfang Chen, Issues about strength of nanocomposites, 19th Annual International Conference on Composites or Nano Engineering, July 24-30, 2011, Shanghai, China

64. Ying Sun, Quanfang Chen, Diameter dependent Strength of nanocomposite, ASME Congress 2009, November 2009, Orlando, Florida
65. Miao Liu and Quanfang Chen, Thickness dependent mechanical properties of PDMS membranes, ASME Congress 2009, November 2009, Orlando, Florida
66. Ying Sun and Quanfang Chen, Mechanics of Carbon Nanotube Metal Composites, SPIE Conferences on Smart Materials and Nanotechnologies, July 8-11, 2009, Weihai, China.
67. Miao Liu, Jenny Sun and Quanfang Chen, MECHANICAL PROPERTIES OF PDMS MEMBRANE AND INFLUENCES OF COMMONLY USED CHEMICALS IN MICROFABRICATION, Micronano2008, Hong Kong, June 5-7, 2008.
68. Jianren Sun, Christopher Bock, and Quanfang Chen, MECHANICAL PROPERTIES OF PDMS AND INFLUENCES BY MICROMACHINING PROCESS, MSEC2008, October, 7-10, 2008, Evanston, IL, USA.
69. Ying Sun and Quanfang Chen, Mechanical Strength of carbon nanotube/Nickel Nanocomposite, SPIE Proceedings 6423, 13 November 2007, DOI: 10.1117/12.779224
70. Bo Li, Sal Gerace, Quanfang Chen, Development of robust self-assembled microvalves for hydraulic actuators, SPIE Vol. 5717, 22 January 2005, DOI: 10.1117/12.600773
71. Jianwei Gong and Quanfang Chen, Application of TSK Fuzzy Neural Network in SMO Gas Sensor Array, *4th IEEE International Conference on Sensors*, Irvine, California, Oct 31- Nov 1, 2005.
72. Bo Li and Quanfang Chen, Direct micro mechanical testing method for MEMS materials, *MEMS-05*, November 5-11, 2005, Orlando, Florida.
73. Bo Li, Quanfang Chen, Low stressed high-aspect-ratio ultra thick SU-8 UV-LIGA process for the fabrication of a heat exchanger, SPIE vol. 5344, 24 January 2004, DOI: 10.1117/12.524608.
74. Jianwei Gong, Weifeng Fei, Sudipta Seal, and Quanfang Chen, Nanocrystalline mesoporous SMO thin films prepared by sol gel process for MEMS-based hydrogen sensor, SPIE vol. 5346, 24 January 2004, DOI: 10.1117/12.524530
75. Dong Gun Lee, Quanfang Chen, Daniel D. Shin, Gregory P. Carman, Microvalve for SMA-based CHAD, SPIE vol. 5055, 22 July 2003, DOI: 10.1117/12.483593
76. Quanfang Chen, Bo Li, Jianwei Gong, Min Wu, Robust microvalves for hydraulic actuators, SPIE vol. 4981, 16 January 2003, DOI: 10.1117/12.479560
77. Bo Li and Quanfang Chen, Development of Robust Microvalves for Large Flow Rate Robust Hydraulic Actuators, *IEEE The Sixteenth Annual International Conference on Micro-electro-mechanical-systems (MEMS2003)*, January 19-23, 2003, Kyoto, Japan, pp96-99
78. Jianwei Gong, Quanfang Chen, Ming-Ren Lian, Nen-Chin Liu, Micromachined Nanocrystalline Silver doped SnO₂ H₂S Sensor, *Nanotech, 2005*, accepted and in print.
79. Bo Li and Quanfang Chen, Development of Self-Assembled Microvalves Using Nano-Structured Nickel for Robust Hydraulic Actuators, *Nanotech, 2005*, accepted and in print.
80. Jianwei Gong and Quanfang Chen, "Sol-Gel Prepared Single Wall Carbon Nanotube SnO₂ Thin Film for Micromachined Gas Sensor", *Technical Proceedings of the 2004 Nanotechnology Conference and Trade Show, Volume 3 (Nanotech 2004 Vol. 3)*, Boston, March 7-11, 2004, pp 232 – 235
81. Jianwei Gong, Weifeng Fei, Zheng Xia, Quanfang Chen, Sudipta Seal, Louis Chow, *IEEE Sensors 2003, The Second IEEE International Conference On Sensors*, October 22-24, 2003, Toronto, Canada, pp124-129

82. Quanfang Chen and Greg Carman, "Microscale Tribology (friction) Measurement and Influence of Crystal Orientation and Fabrication Process", *Thirteenth IEEE Conference on Micro Electro Mechanical Systems (MEMS-2000)*, January 23-27, 2000, Miyazaki, Japan, pp657.
83. Quanfang Chen and Greg Carman, "A Novel Microscale Tribology Measurement System for MEMS", *Proceedings of the Microscale Systems: Mechanics and Measurements Symposium*, June 8, 2000, Orlando, Florida, pp25.
84. Quanfang Chen, Da-Jeng Yao, C.J. Kim, and Greg P. Carman, "Mesoscale Actuator Device with Micro Interlocking Mechanism", *IEEE Annual International Workshop on Micro Electro Mechanical Systems (MEMS'98)*, Germany, January 1998, pp384-389.
85. Bo Li and Quanfang Chen, Development of Robust Self-Assembled Microvalves for Robust Hydraulic Actuators, *SPIE vol. 5717*, 2005, pp195-203.
86. Bo Li and Quanfang Chen, "Low stressed high-aspect-ratio ultra-thick SU-8 UV-LIGA process for the fabrication of a micro heat exchanger", *SPIE*, San Jose, January 25-28, 2004. Proceedings of SPIE Vol. 5346 MEMS/MOEMS Components and Their Applications, 147-154.
87. Dong Gun Lee, Quanfang Chen, Daniel Shin, and Greg P. Carman, " Microvalve for SMA-based CHAP, *SPIE 10th Annual International Symposium on Smart Structures and Materials*, March 2-6, 2003, San Diego, California. Proc. SPIE Vol. 5055, Smart Structures and Materials 2003: Smart Electronics, MEMS, BioMEMS, and Nanotechnology, pp. 300-306
88. Quanfang Chen, Bo Li, Jianwei Gong, Min Hu, Robust microvalves for hydraulic actuators, Proc. SPIE Vol. 4981, MEMS Components and Applications for Industry, Automobiles, Aerospace, and Communication II, January 2003, pp. 18-27
89. Chen, Q., and Patuelli, C., "Characterization of Si₃N₄/Ni Interface by Means of X-ray Microdiffraction, SEM and EDS", *Proceedings of 2nd Pacific Rim International Conference on Advanced Materials and Processing*, 1995, pp. 2693.
90. Quanfang Chen, Carlo Patuelli, "Ground-based preparatory investigations for a microgravity experiment on the morphologies of AgCu eutectic and eutectic alloys", *International Symposium on Experimental Methods of Microgravity Material Science*, USA 1995, pp73-78.
91. Quanfang Chen, X.Q. Ma, X. Peng, and T. F. Li, "Thermal Stress Analysis of Ceramic Thermal Barrier Coating under Loading", *Proceedings of 5th International Symposium on Ceramic Materials & Components for Engines*, Shanghai, China, 1994. pp. 683.
92. X. Peng, X. Ma, T. Li, Q. Chen, and W. Wu, "HREM Study of Effects of La₂O₃ Particles on Al₂O₃ Scale Growth on B-NiAl Coating", *Proceedings of International Conference on Surface Science and Engineering*, Beijing, China, May 1995, pp457.
93. Quanfang Chen, Da-Jeng Yao, C-J. Kim, and Greg P. Carman, "Frequency Response of an Inchworm Motor Fabricated with Micromachined Interlocking Surface Mesoscale Actuator Device (MAD). *Smart Structures and Integrated Systems, San Diego, Proceedings of the SPIE - The International Society for Optical Engineering*, 1998, vol.3329, pp.1-2:768-79. DOI: 10.1117/12.316946
94. D. Wang, H. Alexander, Q. Chen, G.P. Carman, C.J. Kim, and C. Ho, Piezoelectrically Driven Meso-Scale Actuator Device for Aerodynamic Control, *AIAA Adaptive Structure Forum*, Florida, April 1997, pp. 1738-1747.

95. Quanfang Chen, Carlo patulli, R. Tognato, Round based preparatory investigations for a micrography experiment on the morphologies of AgCu eutectic and non eutectic alloys, Proceedings of 7th International Symposium on Experimental Methods for Microgravity Materials Science, Las Vegas, Noveda, USA, 12-16 Feb. 1995. ISBN 0-87339-311-2 (Metal Abstracts, Chemical Abstracts).

Other Publications (selection):

96. Quanfang Chen, “Strength and Reliability Of MEMS and Microcomponents”, 8th World Multiconference on Systemics, Cybernetics and Informatics (SCI 2004), Orlando, Florida, July 18-21, 2004, *Invited talk*, SCI 2004 Volume XV, pp16-20.
97. Quanfang Chen, editor, Proceedings of First Symposium of Chinese Young Scientist on Corrosion Science and Protection Technology, September 8-12, 1993, Shenyang, China.
98. Quanfang Chen, Book chapter, Superalloys, Chinese Metallurgical Engineering Press, 1991.

I.5 Patents and Disclosures

1. Carbon Nanotubes Reinforced Metal Composites, US Patent, 7,651,766
2. ELECTROCHEMICAL CODEPOSITION METHODS FOR FORMING CARBON NANOTUBE REINFORCED METAL COMPOSITES", US patent 12/693,240, to be issued.
3. Temperature feedback control for solid state gas sensors, US patent 20060199271
4. “Toughened and Strengthened Thermal Barrier Coating (TBC) by Laser Cladding”, No. CN95110278.8 (1995).
5. “A New Type NiAl Coating with Addition of RE Oxide for Improving Hot Corrosion Resistance, No. CN941125107.3 (1994).
6. “A Novel Composite Plating Device for Preparation of Composite Metallic Layer with Oxide Dispersion”, No. CN94231310.0 (1994).
7. “A Composite Coating with RE Oxide Dispersion Prepared by Composite Plating and Thermal Diffusion Process”, No. CN911016106.1 (1991).

I.6 Other Efforts for Research

Previous Research at UCLA

- Principal contributor to an Army Research Office supported MURI project (1996-1999, \$3,600,000), developed a robust mesoscale actuator device using MEMS technology and smart materials including PZT.
- Initiator and Co-PI of a DARPA STTR program “Piezoelectric Pump Utilizing Innovative Non-Mechanical Active Valves”, \$100,000, 1998-1999.
- Contributor of a successful proposal to DARPA CHAP Program, “Inchworm HMR (Hybrid MEMS Ratchet High-Power Piezoelectric Actuator)” (\$770,000 for UCLA’s portion)
- Worked on molecular dynamic simulation of SiC under ion radiation

Previous Research at Institute of Metals Research, Chinese Academy of Science

- Leader of a research group
- PI of a China Advanced Technology Committee “863” supported project on thermal barrier coating (1993-1996)
- PI of a Chinese Natural Science Foundation supported project on molecular dynamics simulation of Ni₃Al Alloys (1993-1996)
- Co-PI of a Chinese Natural Science Foundation supported sub-project on molecular dynamics simulation of copper oxidation (1992-1995)
- Winner of the National Complimentary Postdoctoral Fellowship Program

Previous Research as visiting professor at Bologna University, Physics Department, Italy (1994)

Served a Visiting Professor position at the Department of Physics of Bologna University (1994) awarded Visiting Professorship by the Italy CNR.

Previous Research at the Institute of Strength Physics and Materials Science, Russia Academy of Science (1992).

Served a visiting scientist position at the Institute of Strength Physics and Materials Science, Russia Academy of Science (1992), supported by the Russia Academy of Science.

II. TEACHING EXPERIENCE

- Program coordinator (education) of MES program, 2002-present
- Took the lead in developing a successful graduate track program, the Miniature Engineering Systems (MES), at UCF
- Took the lead in developing curriculum of the Miniature Engineering Systems (MES) program; 8 new courses have been approved by the university
- Developed 3 new graduate courses (EML5290 Intro to MEMS and Microfabrication, EML6296 MEMS Mechanisms and Design, EML 6297 MEMS Characterization) at UCF

II.1 Courses Taught at UCF

- EML 5290 (New course developed), *Introduction of MEMS and Microfabrication.*
- EML 6296 (New course developed) *MEMS Mechanism and Design*
- EML6297 (New course developed) *MEMS Characterization*
- EML 5721 *Intermediate Dynamics*
- EGN 3321 *Dynamics*
- EMA 3012C *Experimental Techniques in Mechanics and Materials*

II.2 New Graduate Courses Developed at UCF

- **EML 5290, *Introduction of MEMS and Microfabrication.***

Course contains: This is a required course for the MES program. It covers the introduction to Miniature (nano/micro/meso scale) Electro Mechanical Systems (MEMS) and microfabrication methods. Students will learn various etching methods and etching mask selection for micromachining, basics of silicon and non-silicon micromachining process, fundamental of bulk micromachining, thin film deposition and surface micromachining. It also covers UV-LIGA and LIGA process, as well as non-Lithography microfabrication processes. This is the first time of such course offered at UCF.

- **EML 6296 MEMS Mechanism and Design**

Course contains: This new course has been developed as a required course for the MES program. Students will learn MEMS (sensors and actuators) sensing and actuation mechanisms, MEMS design methods, design rules and design tools. This is the first time of such course offered at UCF.

- **EML 6297 EMS Characterization**

MEMS characterization is a key component for MEMS product development, in addition to MEMS design (EML 6296) and microfabrication (EML 5290). This course covers MEMS functional characterization and reliability related characterization. Students will learn how to design and develop characterization methods, and how to interpret characterization results to improve the related MEMS design and the fabrication.

II.3 New Track Program (MES) Developed at UCF

- Took the lead in developing a new track program of *Miniature Engineering Systems* (MES) at UCF. The MES track program (graduate) started in spring semester of 2002. The UCF's *Miniature Engineering Systems Program* was the **first** of such graduate program established in the Florida State, and one of few in the nation.
- Took the lead in developing total of 6 new courses for the curriculum of the MES program, in working closely with other faculties within the program.
- Required Courses Approved for MES Program
 - _ EML 5060 Math Methods in MMAE (3 credit hours)
 - _ EML5290 Introduction of MEMS and Micromachining (3 credit hours)
 - _ EML 6296 MEMS Mechanism and Design (3 credit hours)
 - _ EEL 6326C MEMS Fabrication laboratory (3 credit hours), or EEL 5355C Fabrication of Solid-State Devices for MMAE students until further notice.
- Track Specialty Courses approved
 - _ EML 5292 Fundamental Phenomena and Scaling Laws in Miniature Engineering Systems (3 credit hours)
 - _ EML 5291 MEMS Materials (3 credit hours)
 - _ EML 6299 Advanced Topics on Miniaturization (3 credit hours)
 - _ EML 6297 MEMS Characterization (3 credit hours)
 - _ EML 6295 Sensors and Actuators for Micro Mechanical Systems (3 credit hours)

II.5 Supervision

Visiting Professors

- Dr. Yitian Peng, Southeast University, China, November 2012-October 2013
- Dr. Cong Li, Shanghai University, June 2012-May 2013

Postdoctoral Fellows/Research Associates:

- Dr. Yitian Peng, November 2012-
- Dr. Liangfu Zheng, 2010-2013
- Dr. Yitian Peng, January 2008-July 2009, now Associate Professor, Southeast University, China
- Ms. Jenny Sun, MD, 2007-
- Mr. Naigang Wang, January 2006-September 2006, Now with IBM, New York
- Dr. Guangyu Chai, June 2005-September 2006, Now with Planar Energy Devices Inc., Orlando, Florida
- Dr. Bo Li, March 2005 to June 2005, now with Poly Plant Project Inc.
- Dr. Min Hu, April 2001 to March 2002, Nanyang Technology University, Singapore

Ph.D. Students

- Natalie Concors, major in Mechanical Engineering, since 2013
- Jinying Jiang, major in material science and Engineering, since 2013
- Yunshu Wang, major in material science and Engineering, since 2012
- Shenghong Zhang, major in Mechanical System Engineering, since Fall 2010, passed the qualify exam in spring 2012.
- Chengyu Yang, major in Materials Science and Engineering, passed qualify exam in November 2010 and passed the candidacy in Spring 2011. To defense her dissertation on May 24, 2013.
- Ke Huang, Fall 2007-, qualify exam passed in 2008, major in Material Science and Engineering.
- Ying Sun, Ph.D, major in Materials Science and Engineering, Dissertation defense passed on April 2010, Now with IBM, New York
- Miao Liu. Ph.D. Dissertation defense passed on March 7, 2008, major in mechanical engineering. Now Associate Professor, Chinese Academy of Science
- Bo Li, Ph.D. Dissertation defense passed on November 8, 2004, major in mechanical engineering. Now with Poly Plant Project Inc.
- Jianwei Gong, Ph. D. Dissertation defense passed on November 5, 2004, major in mechanical engineering. Now with TMIEC-GE, Virginia.

Master Students:

- Mr. David Sadat, major in Miniature Engineering Systems, join the group in Spring 2010 and graduated in May 2012. Now with the Global Foundry in New York.

- Mr. Steven Padrosa, major in Miniature Engineering Systems, join the group in Fall 2009 and graduated in 2011. Now with the Intel in Arizona.
- Mr. Christopher Bock, major in Miniature Engineering Systems, graduated in June 2010. Now with Florida Hospital in Orlando.
- Mr. Manny Meregildo, Fall 2007 to Fall 2008, major in Miniature Engineering Systems.
- Mrs. Shelly Ellis, spring 2003 to Fall 2003, major in mechanical engineering.
- Mr. Zheng Xia, supervised in Spring 2003-Fall 2004, major in mechanical engineering.

Undergraduate Students Supervised for Doing Research Projects:

- Anthony Calleri
- Darius Hooshmandan
- Nicholas Lohr
- James Mehlman
- Bryson Nebeker
- Peter Colletti
- Mathew Cothrine
- James Field
- John Van Hall
- Wen-cheng Yang
- Joshua Ferris
- Robert High
- Nathalie Moyano
- Mr. Matthew Sherman
- Mr. Michael Heinz
- Mr. Terence Starnes
- Mr. Mike Lenarz
- Mr. Sal Gerace
- Miss Jasmine Jones
- Mr. Ryan J. Henry
- Mr. Houston Higgs
- Mr. Chris Fredrick

K-12 Students Supervised

- Gerin Claire, Florida Bright Future Scholarship holder (University High School), has joined Mechanical Systems program of MMAE in the fall 2004.

III. SERVICES

III.1 ACADEMIC SERVICES

- Member, College of Engineering and Computer Science's Sabbatical Award Committee, Spring 2013-
- Chair, Ph.D. Dissertation Defense Committee for Chengyu Yang, May 2013

- Member, Department's laboratory committee, Spring 2013-
- Member, Ph.D. Dissertation Defense Committee for Dr. Yan Chen, Spring 2013.
- Member, Ph.D. Dissertation Defense Committee for Dr. Wenlang Liang, Spring 2013.
- Chair, Thesis Defense Committee for Mr. David Sadat, Spring 2012
- Member, Ph.D. Dissertation Defense Committee for Ms Wen Liu, Electrical Engineering, Fall 2012
- Member, Equipment Committee, MAE Department, 2012
- Member, Promotion and Tenure Committee, MAE Department, 2012
- Member, Promotion and Tenure Committee, MSE Department, 2012
- Member, Ph.D. Candidacy Defense Committee for Mr. Matthew McInnis, Spring 2012
- Member, Ph.D. Candidacy Defense Committee for Mr. Umesh Singh Spring 2012
- Member, Ph.D. Candidacy Defense Committee for Mr. Wenlang Liang, Spring 2012
- Member, Ph.D. Candidacy Defense Committee for Mr. Karthik Padmanabhan, Spring 2012
- Chair, Thesis Defense Committee for Mr. Steven Padrosa, Fall 2011
- Member, Ph.D. Candidacy Defense Committee for Mr. Yan Chen, Fall 2011
- Member, Honorable Committee, MMAE Department, 2011-2012
- Member, Promotion and Tenure Committee, MMAE Department, 2011
- Chair, Ph.D. Candidacy Defense Committee for Miss Chengyu Yang, Spring 2011
- Member, Graduate Committee, MMAE Department, 2010
- Chair, Thesis Defense Committee for Mr. Christopher Bock, Fall 2010
- Member, faculty Search Committee, MMAE Department, 2010
- Chair, Ph.D. Dissertation defense committee for Ms Ying Sun, Fall 2009
- Faculty Representative, Summer Commencement of University of Central Florida, 2009
- Program Coordinator, Miniature Engineering Systems Program, Spring 2002 to present
- Member, Ph.D. Dissertation defense committee for Yan Tang, Spring 2009
- Chair, Ph.D. qualify exam of mechanical systems program, 2008
- Member, Graduate Committee, 2008
- Chair, Ph.D. Dissertation defense committee for Ms Miao Liu, Spring 2008
- Member, Ph.D. Dissertation defense committee for Kota Krishna, Summer 2008
- Member, Ph.D. Dissertation defense committee for Johan Westin, Summer 2008
- Member, Ph.D. Dissertation defense committee for Peng Zhang, Fall 2008
- Chair, Ph.D. qualify exam of mechanical systems program, 2007
- Chair, Ph.D. candidacy defense committee for Ms Ying Sun, Fall 2007
- Member, Graduate committee of MMAE department, 2006-2007
- Member, Ph.D. Dissertation defense committee for Umit Kursun, Summer 2006
- Chair, Ph.D. candidacy defense committee for Ms Miao Liu, Fall 2006
- Member, Ph.D. candidacy defense committee for Mr. Johan Westin, Summer 2006
- Member, Ph.D. Dissertation defense committee for George Wayne Finger, Fall 2005
- Member, M.S. defense committee Ravi Todi, Fall 2005
- Member, Graduate committee of MMAE department, Spring 2003 to 2005
- Member, Ph.D. Dissertation defense committee for Dr. Xiaoyi Li, Spring 2005
- Member, Ph.D. candidacy defense committee for Mr. G. Wayne Finger, Spring 2005
- Member, Ph.D. candidacy defense committee for Mr. Umit Kursun, Spring 2005

- Chair, Ph.D. Dissertation defense committee for Dr. Bo Li, Fall 2004
- Chair, Ph.D. Dissertation defense committee for Dr. Jianwei Gong, Fall 2004
- Member, Ph.D. Qualify Exam and Comprehensive Exam Committee, Spring 2004
- Member, Ph.D. candidacy defense committee for Ms Xiaoyi Li, Spring 2004
- Member, Ph.D. dissertation committee for Dr. Lei Zhou, Spring 2004
- Chair, Ph.D. Qualify Exam and Comprehensive Exam Committee of Mechanical Systems Program, Fall 2003
- Chair, Ph.D. candidacy defense committee for Mr. Bo Li, Fall 2003
- Chair, Ph.D. candidacy defense committee for Mr. Jianwei Gong, fall 2003
- Member, Ph.D. dissertation committee for Dr. Weifeng Fei, Fall 2003
- Member, MMAE department search committee of miniaturization, 2002
- Member, Ph.D. Qualify Exam and Comprehensive Exam Committee, Spring 2002
- Chair, Ph.D. Qualify Exam and Comprehensive Exam Committee, Fall 2002
- Representative for MMAE department in participating ABET workshop, 2001
- Member, Ph.D. Qualify Exam and Comprehensive Exam Committee, 2001
- Member, MMAE department search committee of miniaturization, 2001

III.2 PROFESSIONAL SERVICES

- Editorial Board Member of The Scientific World Journal (Impact Factor 1.524), Hindawi Publishing Corporation, 2012-
- Editorial Board Member of the JP Journal of Solids and Structures, 2012-2014
- Editorial Board Member of the International Journal of Materials Engineering and Technology, 2012-2014
- Member of the International Organizing Committee, Eighth International Forum on Advanced Material Science and Technology (IFAMST-8), August 1 to 4, 2012 Fukuoka, Japan
- Advisory Board Member, BIT's 1st Annual World Congress of NanoMedicine 2010.
- Renowned Speaker and Session Chair , BIT's 1st Annual World Congress of NanoMedicine 2010, October 2010, Beijing, China.
- Panel Reviewer, National Science Foundation, 2011
- Panel Reviewer, National Science Foundation, 2010
- Panel Reviewer, National Science Foundation, 2009
- Panel Reviewer, National Science Foundation, 2008
- Reviewer of US Department of State, 2007
- Reviewer of U.S.-Israel Binational Science Foundation, 2007
- NSF Panels, 2007
- Reviewer of International Copper Association, 2006
- NSF Panels, 2006
- NSF Panel, CMS Division, 2005
- NSF Panel, ECS Division, 2005
- NSF Panel, DMII Division, 2005
- NSF panel, DMII Division, 2004
- NSF Panel, DMII Division, 2004

- Program committee member and session chair, Conference of MEMS Components and Applications, SPIE, 2005
- Selected paper for virtual display on nanochemical sensors, only a few of papers were selected. Nanotech2004
- NSF EPsCoR proposal reviewer for Louisiana State Board of Regents, 2004
- Proposal reviewer for Louisiana State Board of Regents, 2005, Research Competitiveness Subprogram (RCS) and Industry Ties Research Subprogram (ITRS)
- Program committee member and session chair, Conference of MEMS Components and Applications, SPIE, 2004
- NSF Panel, CMS Division, 2003
- NSF Panel, DMII Division (MEMS/MOEMS program), 2003
- Member of ASME
- Member of SPIE
- Invited seminar on MEMS and Chemical Sensors, Tyco International Inc, Boca Raton, 2003
- Program committee member and session chair, Conference of MEMS Components and Applications, SPIE, 2003
- Editorial board member, Journal of Chinese Corrosion and Protection Society, 1993-1995.
- Vice Chair, Chinese Young Scientist Committee, Chinese Corrosion and Protection Society, 1993-1995.
- Chair, First Symposium of Chinese Young Scientist on Corrosion Science and Protection Technology, September 8-12, 1993, Shenyang, China.

Invited Journal Paper Reviewing:

- Reviewer, *Journal Microfluidics and Nanofluidics*
- Reviewer, *Micro & Nano Letters*
- Reviewer, *Nanotechnology*
- Reviewer, *Materials Letters*
- Reviewer, *Composite Part B*
- Reviewer, *IEEE Sensors Journal*
- Reviewer, *Smart Materials and Structures*
- Reviewer, *Materials Science and Engineering B*
- Reviewer, *J. of Microengineering and Micromechanics*
- Reviewer, *Sensors and Actuators B (Chemical)*
- Reviewer, *Sensors and Actuators A (Physical)*
- Reviewer, *Journal of Micro/Nanolithography, MEMS and MOEMS (JM3)*
- Reviewer, *Journal of Aircraft*
- Reviewer, *Optics and Lasers in Engineering*
- Reviewer, *Electrochemistry Communications*
- Reviewer, *International Journal of Damage Mechanics*
- Reviewer, *Journal of Materials Research*
- Reviewer, *Surface and Coatings Technology*

- Reviewer, *Journal of Intelligent Materials and Systems Structures*
- Reviewer, *International Journal of Environment and Pollution*
- ...