

Dr. Fan-Gang(Kevin)Tseng

fangang@ess.nthu.edu.tw

03-5715131 34270

0937151305 (Taiwan)



PROFESSIONAL PREPARATION

University of California, LA	Mechanical Engineering Dept.	Ph.D. Sep. 1994-May 1998
National Taiwan University	Institute of Applied Mechanics	M.S. Sep. 1989-June 1991
National Tsing-Hua University	Power Mechanical Engineering	B.S. Sep. 1985-June 1989

APPOINTMENTS

2013 -2014 **Associate Vice President (AVP)**, Office of Global Affairs, *National Tsing-Hua Univ. , Taiwan*

- Direct and plan the international Cooperation and Synergic Projects, including the bilateral joint Ph.D programs between NTHU and U. of Liverpool UK, Technion Israel, Lund U. Sweden, U. of Stuttgart Germany, IIT-Madras India, international joint graduate schools with RIKEN and NIMS Japan, and other bilateral cooperation MOUs regarding education and student exchange for more than 160 schools worldwide and 15 with mainland China.
- Assisted the 1st Taiwan educational exhibition in San Francisco, USA, by providing consultants for the arrangement of the exhibition, administrative support, and channels for recruiting participants. This exhibition successful attracted more than 200 participants interested in higher-level study in NTHU Taiwan, and more than 20 sending out the applications for graduate level study.
- Receiving more than 200 academia/industry visitors from Japan, Russia, USA, Canada, France, Germany, Switzerland, UK, Czech, Sweden, Israel, Hong Kong, Macau, Singapore, Australia, Lithuania, Korea, Mainland China, India, Thailand, Vietnam, Philippine, Malaysia, Indonesia, for exchanging educational experience, discussing about educational cooperation program, and building up long term relationship and trust. More than 20 MOU for joint education programs or student exchange agreement have been signed after those visiting and discussion.
- Promote bilateral joint research projects to France, UK, USA, Canada, Germany, Australia, Russia, Japan, Korea, Vietnam, Mainland China. Currently NTHU have more than 50 international cooperation projects, including two with European Union, 10 with USA aero-force and army research lab, 3 with France, 2 with Russia, 2 with Israel, 5 with Japan, 1 with Canada, 4 with Germany, and others.
- Host 7th France-Taiwan Frontiers of Science interim meeting by providing administrative support, arranging meeting schedule and venue, and hosting idea exchange sessions. This symposium successfully precipitates 2 bilateral cooperation projects in Life Science and photonic physics.
- Promote international students from USA, Canada, Germany, UK, France, Russia, Czech, Israel, Australia, New Zealand, Lithuania, Japan, Korea, Hong Kong,

Macau, India, Mainland China, Thailand, Malaysia, Indonesia, Mongolia, and Vietnam, to study in NTHU Taiwan by arranging delegation visiting specific schools in those countries, providing recruiting channels, and hubbing the information exchange process. Currently NTHU consists of more than 500 international students/scholars from 36 different countries, including USA, Russia, France, Czech, Israel, Australia, New Zealand, Korea and Japan.

- Assisted the establishment and sponsorship of four Taiwan Educational Centers, including IIT-Madras, Amity U., OP Jindal Global U., and U. of Jamia Millia Islamia in India by Helping on the proposal writing to Ministry of Education, interviewing qualified Taiwanese teachers to teach mandarin in the four educational centers, and arranging the funding and administration support to the teachers and teaching assistants.

2009 - present **Deputy Director, *Biomedical Technology Research Center, National Tsing-Hua Univ., Taiwan***

- Plan and Assist Brain storm Symposiums for Bio-X in NTHU.
- Plan and Host Bi-lateral research symposiums between NTHU-Veteran General Hospital, NTHU-Chang-Gang Hospital, NTHU-NHRI, NTHU-Mackay Hospital.
- Managing and review proposals of NTHU-Hospital Bi-lateral projects.
- Build up cooperation channels and relationship to 4 major Hospital in Taiwan.
- Promote and Integrate NTHU research tasks into Biomedical related teams, including brain research, Cancer early diagnosis, and translational medicine.
- Promote National level project application from the integrated teams among NTHU and cooperative Hospitals: 4 teams successful in National Nanotechnology program, 3 teams successful in Pharmaceutical and biomedical National Program, Ministry of Science and Technology, Taiwan.
- Secure National Level *Advanced Biomedical Research Centers* sponsored by National Excellence Program, Ministry of Education, Taiwan.

2006 - present **Head of technique division, *Nano and Micro Technology Research Center, National Tsing-Hua Univ., Taiwan***

- Direct the AFM measurement facility in accreditation, education, service, and maintenance.
- Provide technical supports to AFM operation, measurement, and applications.
- Provide technical consultants to MEMS fabrication technology.
- Provide technical consultants to nanoparticle fabrication and measurement.

2006 - present **Professor, *Dept. of Engineering and System Sciences, National Tsing-Hua Univ., Taiwan***

2010 - 2013 **Chairman, *Dept. of Engineering and System Sciences, National Tsing-Hua University, Taiwan***

- Integrated the research directions of the department into two major focuses: low carbon green energy systems (including hydrogen, nuclear, and solar energies), and Nanotechnology and Nanosystems.

- Promoted the integration of research teams in ESS, and successfully acquired 2 Nanotechnology National Projects with one in Bionanotechnology and one in Nano materials Characterization (successful rate < 10%, there are fewer than 6 projects concurrently conducted in NTHU), 3 Energy National Projects with 2 in Nuclear Energy and 1 in Fuel Cell (successful rate <15%, there are fewer than 8 projects concurrently conducted in NTHU)
- Lead the department to successfully obtain the IEET accreditation for 3 years, through which the qualification of ESS graduated students can be recognized internationally.
- Build up connection to the Universities and Institutes in Hanoi Vietnam by arranging delegation visiting, joint bi-lateral research project, and joint symposiums with Hanoi U. of Science and Technology, Hanoi University, Center for MicroElectronic and Information Technology (IMET), National Center for Technological Progress (NACENTECH), Vietnam.
- Build up cooperative relationship to Tsing-Hua University, Beijing by bi-laterally visiting, signing cooperation agreements, and exchanging undergraduate level and graduate level students.
- Exposed and advertised Department by shooting 3 U-Tube films related to the ESS' s focused areas including Low Carbon Green Energy, Nano/Micro Systems, and 3D Bio-TEM (a special issue for *Nature* publication by Prof. F.R. Chen), going into more than 20 high schools for introductory speeches, inviting students and parents into department open house for imitate interaction, providing summer ESS camp to attract high school students in contact with future studying fields, and arranging professors to answering students' questions on-line and through phone calls.
- Raised scholarships 2 millions NTD for supporting 10 elites student each year with high admission quality to promote department' s ranking advancement from 4% into top 2-3% nationwide.

2002 - 2006 **Associate Professor**, *Department of Engineering and System Sciences, National Tsinghua Univ., Taiwan*

1999 - 2002 **Assistant Professor**, *Department of Engineering and System Sciences, National Tsinghua Univ., Taiwan*

1998 - 1999 **Senior Engineer**, *Information Science Institute/University of Southern California, USA*

SYNERGISTIC ACTIVITIES

2014 - present Visiting Professor, Koch Institute of Integrative Cancer Research, Prof. Robert Langer' s Lab, Massachusetts Institute of Technology, Cambridge MA, USA.

2007 (July-Sep.) Visiting Professor, Mechanical Engineering Dept., Prof. Chih-Ming Ho's Lab, UCLA, USA.

2006 - present Affiliated Professor, *Nano Engineering and Micro Systems Institute, National Tsing-Hua Univ., Taiwan.*

2006 - present Affiliated Research Fellow, *Applied Science Center, Academia Sinica, Taiwan*

RESEARCH FIELDS

BioNEMS, Micro/nano Fluidics, Micro Fuel Cells/Reformers, Biosensors, Cell Chips

MEMBERSHIPS

- 03/2014-present **Fellow**, American Society of Mechanical Engineer (ASME), USA
01/2014-present **Member**, The Electrochemical Society (ECS), USA
06/2012-present **Member**, American Chemical Society (ACS), USA
01/1996-present **Member**, Institute of Electrical and Electronics Engineering (IEEE), USA
01/1996-present **Member**, American Society of Mechanical Engineer (ASME), USA
01/1999-12/2002 **Member**, American Association for the Advancement of Science (AAAS), USA
01/1999-present **Life Member**, Micro System and Nanotechnology Association, Taiwan.
01/2002-present **Life Member**, Society of Theoretical and Applied Mechanics, Taiwan.
01/2006-present **Life Member**, The Chinese Institute of Engineers, Taiwan
01/2003-present **Life Member**, Chinese Biology Industry Development Association, Taiwan
01/2009-present **Board Member**, Taiwan Nanoengineering and Micro System Technology Association, Taiwan
06/2013-present **Life Member**, Biophysics Society, Taiwan.

EDITOR for

- Editorial board**, *Micromachines*, MDPI, Switzerland, 2014-
Editorial board, *Journals and conferences*, IRED, USA, 2014-
Associate Editor, *Open Access Books*, De Gruyter Open, Berlin, Germany, 2013,12-
Editor for a special issue, *Micromachines*, MDPI, Switzerland, 2012-2013
Editorial board, *Applied Sciences*, MDPI, Switzerland,2010-
Editorial board, *Circuits and Systems*, SCIRP, USA, 2010-
Editorial board, *The Open Micromachine Journal*, 2009-
Editorial board, *The Open Nanomedicine Journal*, 2008-
Editor for a MEMS special issue, *Electronic Magazine*, Taiwan, Jan. issue, 2009
Editor of *Chinese Micro Electromechanical System magazine*, 2002, 2004
Editor of a book: “Micro Electromechanical System Technology and Applications” , pressed by Precision Instrument Development Center of National Science Council, 2003

REVIEWER for

Applied Physics Letters, Biosensors and Bioelectronics, Lab on a Chip, Analyst, Analytical Chemistry, Nanomedicine, Journal of Power Sources, Electrochimica Acta, Langmuir, Microfluidics and Nanofluidics, Biomicrofluidics, Biomedical Micro Device, Journal of Micromechanics and Microengineering, Circuits and Systems, Optics Express, IEEE/ASME Journal of Microelectromechanical Systems, Sensors and Actuators A, Sensors and Actuators B, Nanoscale, Nanotechnology, Nanoscale Research Letters, Micro and Nano Letters, IEEE J. Nanotechnology, IEEE T. Nanobioscience, Journal of Nano/Molecular Medicine and Engineering, Journal of Applied Physics D, IEEE/ASME Transactions On Mechatronics, IEEE Sensors Journal, Journal of Heat Transfer, Experimental Thermal and Fluid Science, International Journal Heat Transfer, Thermodynamics, and Fluid Mechanics, International Journal of Mechanical Sciences, Electronic Package, Applied Science, Micromachines, Circuits and Systems.

HONORS AND AWARDS

1. **Y. Z. Hsu Scientific Paper Award, 200k NTD, In Green Technology**, A High Efficient Micro-Proton Exchange Membrane Fuel Cell by Integrating Micro-Nano Synergical Structures, **April, 2014**

2. **ASEM Fellow**, elected by American Society of Mechanical Engineer (ASME), USA, March, 2014
3. **National Innovation Award**, with Prof. LC Pan (TMU), A micro fluidic sperm sorting device, Taipei, Taiwan, Dec.19, 2013.
4. Third Prize in iCAN 2013, “A multifunctional and wireless dog leash” , 2013 International Contest of Applications in Nano-Micro Technology (iCAN'13), June 18th, 2013, Barcelona, Spain.
5. The Best Poster Award, YC Fang, YH Wu, and FG Tseng, “Design and Fabrication of Fuel-Self-propelled Anode Plate for Passive Micro Direct Methanol Fuel Cells” , *The 4th International Symposium on Microchemistry and Microsystems (ISMM)*, Jun. 10-13, 2012, Hsinchu, Taiwan.
6. The Best Poster Award, WJ Tseng, RQ Wu, HY Chang, and FG Tseng, “High Concentration Peripheral Blood Leukocytes Separation and Enrichment by Hydrodynamic and Inertial Force” , *The 4th International Symposium on Microchemistry and Microsystems (ISMM)*, Jun. 10-13, 2012, Hsinchu, Taiwan.
7. Second Prize, Judy M. Obliosca, Pen-Cheng Wang and Fan-Gang Tseng*, “Dye Fluorescence Quenching Assessment of Cy3-DNA-Au Nanoparticle Hybrid Conjugates Using Functionalized Solid State Array Platform,” *2012 TIGP (Taiwan International Graduate Program) - Nano Science and Technology Poster Competition*, Apr. 27, 2012, Academia Sinica, Taipei, Taiwan.
8. NTHU Excellent in Teaching Award, National Tsing Hua University, June, 2011
9. NTHU Outstanding in Research Award in Top 4%, National Tsing Hua University, 2012, 2013.
10. **NSC Outstanding in Research Award**, National Science Council, Taiwan 2010-2013.
11. **iCAN Taiwan competition Award**, first place, “Safty and RF data acquisition system for motor cycle” , Feb. 22, 2011.
12. **The Best Poster Award**, “Cu-Mn-Zn catalysts prepared for methanol oxidation reforming in microchannel reactors with silicon nanowires” , 2010 International conference on Fuel Cell Science and Technology, Spain, Oct. 6, 2010.
13. **Paper Award**, four papers in *the 14th Nano Technology and MEMS conference*, Sep. 2-3, National Sun-Yat-Sen University, Taiwan, 2010.
14. **Teco Innovative Competition Award, 100k NTD**, third place in Green Techchonlogy Sector,Taipei , Aug. 28, 2010.
15. **The Best Project Award**, Energy academia cooperation project, National Science Council, Taiwan, 2010.
16. **iCAN World competition**, special honor award, “Smart meeting room- Energy saving and Scene control” , 2010.
17. **iCAN Taiwan competition**, third place, “Smart meeting room- Energy saving and Scene control” , 2009.
18. **The Best Paper Award**, “Improve Interface Strength between Silicon Substrate and Nafion by Micro Structures” by Shian-Chih Peng, and Fan-Gang Tseng , *the 13th Nano Technology and MEMS conference*, July. 10-11, National Chiao-Tung University, Taiwan, 2009.
19. **NTHU Outstanding in Research Award**, 2005-2007 (4%) , 2008(15%), 2009-2011(4%).
20. **National Innovation Award**, Second Place, with students CL Wu and CY Hsieh, Taipei, Taiwan, Dec., 2006.

21. **NSC Undergraduate Research Award**, advise student CT Chuang, August, 2006.
22. **NSC First Class in Research Award**, National Science Council, 2005-2008.
23. **The Best Paper Award**, “2-D Electrostatic Manipulated Aspherical Micro Lens” by Chang-Wei Chang, Fan-Gang Tseng, and Chung-Ting Chen, *the 9th Nano Technology and MEMS conference*, Dec. 20-21, Southern Taiwan University, Taiwan, 2005
24. **NSC Mr. Wu, Ta-Yeu Memorial Award**, National Science Council, Taiwan, August, 2005-2008
25. **The Best Poster Award in μ Tas 2004**, "A Monolithic Polymer-Optics Network for TIR-based Fluorescence Sensing", by Shr-Hau Huang, Yu-Jie Huang, and Fan-Gang Tseng, 2004 Micro Total Analysis Systems Conference, Malmo, Sweden, Sep. 26-29, 2004
26. **The Best Paper Award**, “Employing a Novel Refractive Index Matched Medium for Sensitivity Enhancement and Perturbation Reduction of a Fiber-Optic Fabry-Perot Nano-Displacement Sensor” by Chun-Jun Lin, and Fan-Gang Tseng, *the 7th Nano Technology and MEMS conference*, Dec. 20-21, National Taiwan University, Taiwan, 2003.
27. **NTHU Outstanding in Teaching Award**, National Tsing Hua University, June, 2003
28. **New Faculty Research Award**, National Tsing Hua University, Oct. 2002
29. **NSC Research award**, National Science Council, Taiwan, 2000
30. **The Best Paper Award**, “A Color-Coded Particle Tracking Velocimetry with Application to the Investigation of Flow Patterns of Nature Convection in an Enclosure” , by Tzong-Shyan Wung, Fan-Gang Tseng, and Chong-Chin Yeh, *The 15th National Conference on Theoretical and Applied Mechanics*, Tainan, Taiwan, R. O. C., Dec. 1991.

PROJECTS (in total 76 projects, NT 213,856,000, or US\$ 7.13 millions)

PUBLICATIONS

Books or Book Chapters:.

1. Fan-Gang Tseng, Tuhin Santran, ed., *Recent Trends for Single Cell Analysis : Concepts, Applications, and Future prospects*, Elsevier, The Netherland, in editing.
2. Tuhin Subhra Santra, Pen-Cheng Wang and Fang Gang Tseng, “Electroporation Based Drug Delivery and its Applications, in *Advances in Micro/Nano Electromechanical Systems and Fabrication Technologies*, InTech publisher, UK, 2013
3. T. S. Santra, T. K. Bhattacharyya, P. Patel, F. G. Tseng* and T. K. Barik, “Chapter 18 Diamond, Diamond-Like Carbon (DLC) and Diamond-Like Nanocomposite (DLN) Thin Films for MEMS Applications” , in Nazmul Islam edited, *Microelectromechanical Systems and Devices*, Intech Publisher, U.K., Mar., 2012. ISBN 978-953-51-0306-6,
4. Fan-Gang Tseng*, “Chapter 13.6 Surface Coating for Optical Application,” in Reza Ghodssi and Pinyen Lin ed. *Handbook of MEMS Materials and Processes*, in Stephen Senturia ed. *MEMS Reference Shelf Series*, Springer, 2010.
5. Fan-Gang Tseng* and Pen-Cheng Wang, “Chapter 13.5 Surface Considerations for Biological Applications” in Reza Ghodssi and Pinyen Lin ed. *Handbook of MEMS Materials and Processes*, in Stephen Senturia ed. *MEMS Reference Shelf Series*, Springer, 2010.
6. Fan-Gang Tseng*, "Chapter 10 Micro-Droplet Generators" in Mohamed Gad-el-Hak, ed., *MEMS Handbook: MEMS Applications*, CRC press, USA, pp. 30-1~30, Sep., 2006 (2nd edition).
7. Fan-Gang Tseng*, Shih-Chang Lin, Da-Jen Yao, Ching-Chang Cheing, and Haimei Huang, ” Chapter 16 Technological Aspects of Protein Microarrays and Nanoarrays” , in Mark Schena ed. *Protein Microarrays*, Jones and Bartlett Publishers, USA, pp. 305-338, 2004.
8. Fan-Gang Tseng*, “Silicon Bulk Micromachining” & “BioMEMS System,” in *Micro Electro Mechanical Systems Technology & Application*, Precision Instrument Development Center, National Science

Council, Taiwan, 2003.

9. Fan-Gang Tseng*, "Chapter 36 Micro-Droplet Generators," in Mohamed Gad-el-Hak, ed., *MEMS Handbook*, CRC press, USA, pp. 30-1~30, Sep., 2001(1st edition).

Selected Journal Papers (227 in total, 135 for SCI/EI, 92 for EI, H Index: 22, total citation: 1580 upto Aug. 2014):

1. Shang-Chi Lin, Chen-Meng Kuan, Hsi-Kai Wang, Min-Yen Hsu, Chia-Ling Chang, Fan-Gang Tseng, And Chao-Min Cheng, "Cotton-Based Diagnostic Devices", *Scientific Reports*, accepted.
2. Tuhin Subhra Santra, Pen Cheng Wang, Hwan You Chang, Fan Gang Tseng, "Impact Of Pulse Duration On Localized Single Cell Nano-Electroporation" , *Analyst*, accepted.
3. Hsueh-Sheng Wang , Kuo-Yang Huang, Yuh-Jeen Huang, Yu-Chuan Su, Fan-Gang Tseng, "Low-Temperature Partial-Oxidation- Methanol Micro Reformer With High Fuel Conversion Rate And Hydrogen Production Yield" , *Applied Energy*, accepted.
4. Hui-Wen Cheng, Chi-Tsu Yuan, Jyh-Shyang Wang, Tzu-Neng Lin, Ji-Lin Shen, Yuju Hung, Jau Tang, Fan-Gang Tseng, "Modification of Photon Emission Statistics from Single Colloidal Quantum Dots by Conductive Materials", *Phys. Chem. C*, in publication.
5. Cunjing Lv, Chao Chen, Yin-Chuan Chuang, Fan-Gang Tseng, Yajun Yin, Francois Grey, Quanshui Zheng, "Substrate Curvature Gradient Drives Rapid Droplet Motion" , *Physical Review Letters*, 113: 2, 026101, DOI: 10.1103/PhysRevLett.113.026101, July, 2014
6. Cheng-Chiang Huang, Yuh-Jeen Huang, Hsueh-Sheng Wang, Fan-Gang Tseng, Yu-Chuan Su, "A well-dispersed catalyst on porous silicon micro-reformer for enhancing adhesion in the catalyst-coating process" , *International Journal of Hydrogen Energy*, 39:15, pp. 7753-7764, May 2014.
7. Tsung-Ju Chen, Jen-Kuei Wu, Yu-Cheng Chang, Chien-Yu Fu, Tsung-Pao Wang, Chun-Yen Lin, Hwan-You Chang, Ching-Chang Chieng, Chung-Yuh Tzeng, and Fan-Gang Tseng, "High-efficiency rare cell identification on a high-density self-assembled cell arrangement chip" , *Biomicrofluidics*, 8, 036501, 2014.
8. Hsieh HY, Camci-Unal G, Huang TW, Liao R, Chen TJ, Paul A, Tseng FG, Khademhosseini A. "Gradient static-strain stimulation in a microfluidic chip for 3D cellular alignment†" , *Lab on a Chip*, 2014,14, 482-493, Jan 2014 (SCI 5.697, 6/75, RESEARCH METHODS, BIOCHEMICAL, 8%) **(Back cover)**
9. Tuhin Subhra Santra, Pen Cheng Wang, Hwan You Chang, Fan Gang Tseng "Tuning nano electric field to affect restrictive membrane area on localized single cell nano-electroporation" *Applied Physics Letters*, Vol 103, Issue23, 203701, Dec 2013.
10. Joe-Ming Chang, Wei-Yu Chang, Fu-Rong Chen and Fan-Gang Tseng, "Direct measurement of electrostatic fields using single Teflon nanoparticle attached to AFM tip", *Nanoscale Res. Lett.*, 8, pp519-526, Dec., 2013.
11. Hui-Wen Cheng, Yuan-Chih Chang, Song-Nien Tang, Chi-Tsu Yuan, Jau Tang, and Fan-Gang Tseng, "Characterization of single 1.8-nm Au nanoparticle attachments on AFM tips for single sub-4-nm object pickup". *Nanoscale Res. Lett.*, 8 , pp 482/1 - 482/10, NOV 2013.
12. M-H Nguyen, H-J, Tsai, J-K Wu, Y.S. Wu, M-C Lee, F-G Tseng, "Cascaded nano-porous silicon for high sensitive biosensing and functional group distinguishing by Mid-IR spectra" , *Biosensors and Bioelectronics*, Vol.47, 15 Sep., 2013, pp:80-85. DOI: 10.1016/j.bios.2013.02.006.
13. Huang YT, Liu TH, Lin SM, Chen YW, Pan YJ, Lee CH, Sun YJ, Tseng FG, Pan RL., "Squeezing at entrance of proton transport pathway in proton-translocating pyrophosphatase upon substrate binding" , *J. Biol. Chem.*, Vol.288(27),pp.19312-19320, Jul, 2013.
14. Hui-Wen Cheng, Yuan-Chih Chang, Chi-Tsu Yuan, Song-Nien Tang, Chia-Seng Chang, Jau Tang, Fu-Rong Chen, Rong-Long Pan, and Fan-Gang Tseng, "Simple and fast method to fabricate single-nanoparticle-terminated atomic force microscope tips". *Phys. Chem. C*, 117(25), pp 13239 - 13246, JUN 2013.
15. Ren-Guei Wu, Yi-Shiuan Wu, Chung-Shi Yang and Fan-Gang Tseng*, "Charge-Selective Gate of Arrayed MWCNTs for Ultra High-Efficient Biomolecule Enrichment by Nano-Electrostatic Sieving (NES)," *Biosensors and Bioelectronics*, Vol.43, 15 May 2013, pp:453-460. doi: 10.1016/j.bios.2012.12.013.
16. Y. Y. Lo, S.H. Hsu, Y. C. Ko, C. C. Hung, M. Y. Chang, H. H. Hsu, M. J. Pan, Y. W. Chen, C. H. Lee, F. G.

- Tseng, Y. J. Sun, C. W. Yang, and R. L. Pan (2013) “Essential calcium binding cluster of *Leptospira* LipL32 for inflammatory responses through the Toll-like receptor 2 pathway” . *J. Biol. Chem.* 2013 Apr 26;288(17):12335-44. doi10.1074/jbc.M112.418699, 2013.
17. T.-W. Huang, S.-Yi Liu, Y.-J. Chuang, H.-Y. Hsieh, C.-Y. Tsai, W.-J. Wu, C.-T. Tsai, C.-S. Chang, U. Mirsaidov, P. Matsudaira, F.-G Tseng, F.-R. Chen, “Dynamics of Hydrogen Nanobubbles in KLH Protein Solution Studied with In-Situ Wet-TEM” . *Soft Matter* Vol 9, pp.8856-8861, July 2013.
 18. Y.-J. Chang, C.-J. Tsai, F.-G. Tseng, T.-J. Chen, T.-W. Wang, “Micropatterned stretching system for the investigation of mechanical tension on neural stem cells behavior” . *Nanomedicine: NBM* Vol 9, Issue3, pp.345-355 , <http://dx.doi.org/10.1016/j.nano.2012.07.008>, April 2013
 19. Hsien-Chih Peng, Chung-Nan Wang, Tsung-Kuang Yeh, Yu-Chuan Su, Chin Pan, Fan-Gang Tseng*, “A High Efficient Micro-Proton Exchange Membrane Fuel Cell by Integrating Micro-Nano Synergical Structures,” *J. Power Sources*, Volume225, pp.277-285, March 2013.
 20. L. G. Yang, C. H. Yeh, C. Y. Wong, C. W. Chow, * F. G. Tseng, and H. K. Tsang, “Stable and wavelength-tunable silicon-microring-resonator based erbium-doped fiber laser” , *Optics Express*, Vol. 21 Issue 3, pp.2869-2874, 2013.
 21. Huang, Sheng-Wen, Ku, Kai-Ning, Lee, Ming-Chang Mark, Minh-Hang Nguyen, Tseng, Fan-Gang, “Integrated SU-8 Prisms and Microgratings for Polarization-Selective Fiber-to-Silicon Waveguide Coupling” , *IEEE Photonics. Tech. Lett.*, Volume: 24 Issue: 12 Pages: 1054-1056, JUN 15 2012.
 22. Chung-Shi Yang, Fan-Gang Tseng, Hsuan-Shu Lee, Chin-Tu Chen, Chen-Yuan Dong, Leu-Wei Lo, “Visualizing Dynamics of Sub-Hepatic Distribution of Nanoparticles Using Intravital Multiphoton Fluorescence Microscopy”, *ACS Nano*, 6:5, pps: 4122-4131, MAY 2012.
 23. Hsin-Yi Hsieh, Tsu-Wei Huang, Jian-Long Xiao, Chung-Shi Yang, Chien-Cheng Chang, Chin-Chou Chu, Lu-Wei Lo, Shenq-Hann Wang, Pen-Cheng Wang, Ching-Chang Chieng, Chau-Hwang Lee, and Fan-Gang Tseng*, “Fabrication and Modification of Dual-Faced Nano-Mushrooms for Tri-Functional Cell Theranostics: SERS/Fluorescence Signaling, Protein Targeting, and Drug Delivery” , *Journal of Materials Chemistry*, 22 (39), 20918 – 20928, 2012.
 24. Judy M. Obliosca, Pen-Cheng Wang and Fan-Gang Tseng*, “Probing quenched dye fluorescence of Cy3-DNA-Au-nanoparticle hybrid conjugates in solution and array platforms,” *J. Colloid Interface Sci.* 371, pp. 34-41, 2012
 25. Sheng-Chiech Chen, Tuhin Subhra Santra, Chia-Jung Chang, Tsung-Ju Chen, Pen-Cheng Wang, Fan-Gang Tseng*, “Delivery of molecules into cells using localized single cell electroporation on ITO micro-electrode based transparent chip,” *Biomed Microdevices*, DOI 10.1007/s10544-012-9660-9, 2012.
 26. Yi-Shiuan Wu, Ren-Guei Wu, Tsung-Kuang Yeh, Chuen-Horng Tsai, Yu-Chuan Su, Fan-Gang Tseng*, “Thickness control over ionomer coatings on nano patterned three-phase zones for a highly efficient electrode,” *J. Electrochem. Soc.* 159, F242-F248, 2012.
 27. Yi-Shiuan Wu, Shin-Mei Gong, Chun-Hsien Wang, Tsung-Kuang Yeh, Ming-Chi Tsai, Chuen-Horng Tsai, Yu-Chuan Su, Fan-Gang Tseng*, “Highly efficient platinum nanocatalysts synthesized by an open-loop reduction system with a controlled temperature loop,” *Electrochim. Acta* 64, pp. 162 – 170, 2012
 28. Tsu-Wei Huang, Shih-Yi Liu, Yun-Ju Chuang, Hsin-Yi Hsieh, Utkur Mirsaidov, Paul Matsudaira, Fan-Gang Tseng*, Chia-Shen Chang, and Fu-Rong Chen, “Self-Aligned Wet-Cell for Hydrated Microbiology Observation in TEM” , *Lab on a Chip*, 12, 340-347, 2012.
 29. Shih-Hsun Cheng, Cheng-Chih Hsieh, Nai-Tzu Chena, Chia-Hui Chua, Ching-Mao Huang, Pi-Tai Chou, Fan-Gang Tseng*, Chung-Shi Yang, Chung-Yuan Mouc, Leu-Wei Lo, “Well-defined mesoporous nanostructure modulates three-dimensional interface energy transfer for two-photon activated photodynamic therapy” *Nano Today*, 6(6), pp.552-563, 2011.
 30. Chen-Hsi Huang, Pai-Yi Hsiao, Fan-Gang Tseng*, Shih-Kang Fan, Chien-Chung Fu, and Rong-Long Pan “Pore-Spanning Lipid Membrane under Indentation by a Probe Tip: A Molecular Dynamics Simulation Study” , *Langmuir*, 27 (19), pp 11930 – 11942, Aug 22, 2011.
 31. Ren-Guei Wu, Chung-Shi Yang, Ching-Chang Cheing and Fan-Gang Tseng*, “Nanocapillary electrophoretic electrochemical chip: towards analysis of biochemicals released by single cells” , *Interface Focus*, Volume: 1 Issue: 5 Pages: 744-753, OCT 6, 2011.

32. Hsin-Yi Hsieh, Jian-Long Xiao, Chau-Hwang Lee, Tsu-Wei Huang, Chung-Shi Yang, Pen-Cheng Wang, and Fan-Gang Tseng*, "Au-Coated Polystyrene Nanoparticles with High-Aspect-Ratio Nanocorrugations via Surface-Carboxylation-Shielded Anisotropic Etching for Significant SERS Signal Enhancement" , *Physic. Chem. C*, 115 (33), pp 16258 - 16267, 2011.
33. Minh-Hang Nguyen, Chia-Jung Chang, Ming-Chang Lee and Fan-Gang Tseng*, "SU8 3D prisms with ultra small inclined angle for low-insertion-loss fiber/waveguide interconnection" , *Optics Express*, vol .19, 18956, 2011.
34. Joe ming Chang, Fan-Gang Tseng* and Ching-Chang Chieng, "Mixed-SAM Surfaces Monitoring CTX-Protein, Part I: Using Atomic Force Microscope Measurements, " *IEEE Transactions on NanoBioscience*, Vol. 9 : 4 pp. 289-296, DEC 2010.
35. Chia-Jung Chang, Chung-Shi Yang, Li-Hua Lan, Pen-Cheng Wang and Fan-Gang Tseng*, "Fabrication of a SU-8-based polymer-enclosed channel with a penetrating UV/ozone-modified interior surface for electrokinetic separation of proteins" , *Journal of Micromechanics and Microengineering* 20, 115031, Nov. 2010.
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Conference Papers (>360 in total)

TECHNOLOGY TRANSFER/INDUSTRY COOPERATION

1. US patents” US6102530, US6273553, Apparatus and Method for Using Bubble as Virtual Valve in Micro Injector to Eject Fluid” has been Licensed to BenQ Inc., Taiwan for US\$ 2.3 Millions in 2000, to develop high speed and high resolution integrated inject print head from 2000 to 2004, and was engaged into mass production by March, 2005.
2. US patents EFAB technique” App. NO.11/029181 Electrochemical Fabrication Methods Incorporating Dielectric Materials and/or Using Dielectric Substrates” , has been licensed to Micro Fabrica Inc., USA, and obtained US15 millions investment. This technology was also partially licensed to ITRI at Jan. 2005.
3. As consultants for MEMS Center, ITRI, Aerospace and System center, ITRI, Measurement Center at ITRI, Instrumentation Technology Research Center, Physical Optics Corp., USA, Micro Fabrica, USA, BenQ Inc., Taiwan, Enlight Inc., Taiwan, for developing inkjet printer head, microfluidics devices and sensors.
4. PI for National Pharmaceutical and Biotechnology Project for 7 years, developing high throughput Micro fluidic chips for rapid protein micro array formation and detection, set up cooperation with Genesis Biotech, Inc., Taiwan, and Invitrogen Inc., USA. (more than NT\$ 50 millions)

5. PI on Gyroscope development for Chun-Shan Science Institute from 2002-2005 and NeoStone Inc. from 2006-2008. (more than 5 millions)
6. US Patent, 7,561,340 and R.O.C Patent I281975 “TUNABLE MICRO-ASPHERICAL LENS AND MANUFACTURING METHOD THEREOF,” participates in NSC U-Spin project 2007-2008 to form start-up team for set up new company. (more than NT 2 millions)
7. PI on Reforming type Micro methanol fuel cell system for synergic project between NTHU AND Delta Inc., (2007-2010) to develop micro power generator for iPhone or iPad. (more then NT\$ 5 Millions)
8. PI on Ultra High sensitive nano fluidic system and single protein molecule array for rapid cancer diagnosis for National Nanotechnology project from 2007 to 2013. (more than NT 60 Millions)
9. Help AUO Inc. solving bubble generation issues when liquid crystal filling into micro cavities. 2010-2012(more than NT 3.5 Millions)
- 10.Co-PI on micro fluidic device for rapid sperms selection in Biomedical novel product development project (2010-2013), cooperation with Utech Midia, Inc., on rapid chip mold injection technique (2013-). (more than NT 5 Millions)
- 11.PI for NTHU-ITRI joint project: Liquid Lens for OCT and tri-functional SERS particles for bacterial detection. (2011-2013) (more than NT 3 Millions)

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21. Fan-Gang Tseng , And Cheng-En Ho, "Fluidic Nano/Micro Array Chip And Chipset Thereof" R.O.C Patent I367857, July11th, 2012. (In Chinese)
22. Fan-Gang Tseng*, "Passive Micro Fuel Cell," Us Patent 8,227,129b2, July 24, 2012.
23. Fan-Gang Tseng*, And Kuo-Yung Hung, "Immersion Lithography Apparatus And Tank Thereof," Us Patent 8,189,175b2, May 29, 2012.
24. Fan-Gang Tseng*, And Ching-Chang Chieng, "Micro-Fabricated Stamp Array For Depositing Biologic Diagnostic Testing Samples On Bio-Bindable Surface," Us Patent 8,133,455, March 13, 2012.
25. Fan-Gang Tseng, Hsien Chih Peng "Set Of Nano/Micro Structured Objects Capable Of Interlocking Each Other And Structured Object Thereof" , R.O.C Patent Pending Application No.99127039, Aug 13th, 2010. (In Chinese)
26. Fan-Gang Tseng*, Kuo-Yung Hung, "Portable Optical Detection Chip And Manufacturing Method Thereof," Us Patent 7,902,619, March 8, 2011.
27. Fan-Gang Tseng*, And Kuo-Yung Hung, "Micro-Droplet Injector Apparatus Having Nozzle Arrays Without Individual Chambers And Ejection Method Of Droplets Thereof," Us Patent 7,851,251b2, December 14, 2010
28. Fan-Gang Tseng, , Da- Jeng Yao, Tsung-Lin Wu, Li-Chern Pan, Hong Yuan, Huang, "Method Using Microfluidic Chip To Sort High Motility Sperm" R.O.C Patent Pending Application No.98116079, May 15th, 2009. (In Chinese)
29. Fan Fang Tseng, Cheng Lin, Ching Chang Chieng "Microparts And Apparatus For Self-Assembly And Alignment Of Microparts Thereof" R.O.C Patent I408098, Sep.11th, 2012. (In Chinese)
30. Fan Fang Tseng, Cheng Lin, Ching Chang Chieng "Microparts And Apparatus For Self-Assembly And Alignment Of Microparts Thereof" U.S Patent Pending Application No. 12/552,349, Sep 02. 2009.
31. Fan-Gang Tseng*, Kuo-Yung Hung "Immersion Inclined Lithography Apparatus And Tank Thereof" , R.O.C Patent Pending Application No.97138226, Oct 23th, 2008. (In Chinese)
32. Fan-Gang Tseng*, Yi-Da Yang " Micro-Droplet Injector Apparatus Having Nozzle Arrays Without Individual Chambers And Ejection Method Of Droplets Thereof" , R.O.C Patent I322085, March 21th , 2010.
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34. Fan-Gang Tseng, Jian Chiun Liou, "(Multi-Dimensinal Data Registration Integrated Circuit For Driving Array-Arrangement Devices" R.O.C Patent Pending Application No.97123013, Jun 20th, 2008. (In Chinese)
35. Fu-Rong Chen, Sen-Hui Huang, Wei-Tsung Huang, Yi Ming Chen, Yun-Ju Chuang, Wan-Jih Wang , Fang-Gang Tseng, Ji-Jung Kai "Optic Apparatus, Micro-Electromechanical Component And Manufacture Method Thereof)" R.O.C Patent I314347, Sep. 1st, 2009
36. Fan-Gang Tseng*, And Chang-Wei Chen, "Tunable Micro-Aspherical Lens And Manufacturing Method Thereof," Us Patent 7,561,340, July 14, 2009.

37. Fan-Gang Tseng , And Cheng-En Ho, “Fluidic Nano/Micro Array Chip And Chipset Thereof” U.S Patent Pending Application No. 12/110,551, April 28th 2008
38. Fan-Gang Tseng*, Kuo-Yung Hung, “Portable Optical Detection Chip And Manufacturing Method Thereof,” R.O.C Patent Pending Application No.96115534, May 12th, 2007. (In Chinese)
39. Fan-Gang Tseng, Hsin Yi, Hsieh, Chun Lung Wu “Biochip And Manufacturing Method Thereof” U.S Patent Pending Application No.11/864,164, Sep 28th, 2007.
40. Fan-Gang Tseng, Hsin Yi, Hsieh, Chun Lung Wu “Biochip And Manufacturing Method Thereof” R.O.C Patent Pending Application No.096107777, March 7th, 2007. (In Chinese)
41. F. G. Tseng*, H. T. Hsu, And K.H Lin, “Microfluidic Device With Network Micro Channels,” Us Patent 7,229,538, June 12, 2007.
42. F. G. Tseng, Chiung Wen Tsai, Lung Yung Lin, Sywe-Pin Chien, Yuan Lo “Micro Gyroscope ” R.O.C Patent I281975 June 1st, 2007. (In Chinese)
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44. Fan-Gang Tseng*, And Yun-Ju Chuang, “Fabrication Method Of A Three-Dimensional Microstructure,” Us Patent 7,129,025, October 31, 2006.
45. Fan-Gang Tseng , “Passive Micro Fuel Cell” , R.O.C Patent I260103 Aug 11st, 2006. (In Chinese)
46. Chin-Chou Chu, Chien-Fu Chen, Chun-Fei Kung, Chien-Cheng Chang, Fan-Gang Tseng*, “Surface-Tension-Guided Liquid Transportation Device,” Us Patent 7,059,351, June 13, 2006.
47. F. G. Tseng*, K. Y. Hung, And H. T. Hu, “Micro Optical Pickup Head Module, Method Of Manufacturing The Same And Method Of Manufacturing The Objective Lens Of The Same,” China Patent ZI03152585.7, March 22th, 2006.
48. F. G. Tseng*, K. Y. Hung, And H. T. Hu, “Micro Optical Pickup Head Module, Method Of Manufacturing The Same And Method Of Manufacturing The Objective Lens Of The Same,” Us Patent 7,012,762, March 14, 2006.
49. F. G. Tseng*, K. Y. Hung, And H. T. Hu, “Micro Optical Pickup Head Module, Method Of Manufacturing The Same And Method Of Manufacturing The Objective Lens Of The Same,” R.O.C Patent I225246, Dec 11th, 2004.(In Chinese)
50. F. G. Tseng, Yao Chen, “ Superthin Spinneret Manufacturing Method” , R.O.C Patent I222471, Oct 21st, 2004.(In Chinese)
51. F. G. Tseng, Yun-Ju Chuang “3D Microstructure Fabricating Method” R.O.C Patent 03620, June 21st, 2004. (In Chinese)
52. F. G. Tseng, Chih Chen, King Ning Tu, “Method Of Self-Alignment Packaging With Solder” R.O.C Patent 183810, Aug 11th, 2003. (In Chinese)
53. F. G. Tseng , Kuang-Hui Lin, “A Multilayered Microfluidic Devices Of Microchannel Networks” R.O.C Patent 182739, June 11th , 2003.(In Chinese)
54. Chih-Sheng Yu, Fan-Gang Tseng, Han-Wei Su “A Protecting Device For Silicon Wafer Etching” R.O.C Patent 176609, March 21st , 2003.(In Chinese)
55. Li-Chern Pan, Jun-Liang Chen, Fan-Gang Tseng *, Sheng-Yang Lee, Wei-Jung Chang, Kei-Chiang Leou, Hao-Ming Huang, Kuang-Yo Cheng, Chun-Hung T “Micro Implant Fixture Stability Manufacturing Apparatus Method And Thereof” R.O.C Patent 151409, Feb 21st, 2002.
56. Adam Cohen, Gang Zhang, And Fan-Gang Tseng*, “Electrochemical Fabrication Methods Incorporating Dielectric Materials And/Or Using Dielectric Substrates,” Us Patent Pub. No. Us 2005/0202667 A1, September 15, 2005.
57. Chang-Jin Kim, Fan-Gang Tseng*, And Chih-Ming Ho, “Apparatus And Method For Using Bubbles As Virtual Valve In Microinjector To Eject Fluid,” R.O.C Patent 144,978 , Oct 11, 2001(In Chinese)
58. Chang-Jin Kim, Fan-Gang Tseng*, And Chih-Ming Ho, “Apparatus For Using Bubbles As Virtual Valve In Microinjector To Eject Fluid,” US Patent 6,273,553, August 14, 2001.
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INVITED TALKS (63 international invitations, more than 200 domestic invitations)

- 10/14 **Invited Talk**, Dual-Faced Nano-Mushrooms for Tri-Functional Cell Diagnosis, ECS 226 meeting, Cancun, Mexico.
- 07/14 **Keynote**, Gradient Strain Guidance for Cellular Micro-Alignment, Advance Micro Nano Fluidics System ISMM 2014, Singapore.
- 06/14 **Keynote**, Low Temperature & High Performance Micro Methanol-Reforming Type Hydrogen/Oxygen Fuel Cells, FoTEL 2014, NTHU, Taiwan.
- 06/14 **Keynote**, Silicon Nanowires Gated Nanofluidic System For Single Bacterium Detection By Msn-Based Redox Signal Amplification, IUMRS-ICEM 2014, TWTC Nangang, Taiwan.
- 05/14 **Keynote**, Gradient Strain Guidance for Cellular Micro-Alignment, Advance Micro Nano Fluidics System 2014, Taipei, Taiwan
- 05/14 **Invited Talk**, From High Efficient Protein Micro Chip Toward Ultra High Sensitive Single Protein Nano Array, The 4th Asia Pacific Protein Association (APPA2014) Conference, Jeju, Korea
- 05/14 **Invited Talk**, Dual-Faced Nano-Mushrooms for Tri-Functional Cell Diagnosis, ISEN 2014, Taiwan.
- 01/14 **Invited Talk**, Dual-Faced Nano-Mushrooms for Tri-Functional Cell Diagnosis, 3rd cross strait Nano Photonics Symposium, NCKU, Taiwan.
- 11/13 **Invited Talk**, “*Nano/Micro Fluidic Systems for Circulating Tumor Cells (CTCs) Rapid Detection and Diagnosis*” ,3rd Annual Word Congress on Molecule Medicine, HaiNan, China.
- 10/13 **Invited Talk**, Dual-Faced Nano-Mushrooms for Tri-functional Cell Diagnosis: SEARs/Fluorescence Signaling, Immune Targeting, and Drug Delivering, IEEE NMDC 2013, Tanan, Taiwan.
- 09/13 **Invited Talk**, “*Tri-Functional Nanoparticles with Strong SERS for Biosensing*” ,Bilateral Russian-Taiwan Symposium “Material Processing at Micro and Nano Level” , Russia Academia Of Science, Siberia, Russia.
- 09/13 **Invited Lecture**, “*Nano/Micro Fluidic Systems for Circulating Tumor Cells (CTCs) Rapid Detection and Diagnosis*” , 2013 Namis Autumn School, Seoul, Korea.
- 09/13 **Keynote**, “High Density Cells Array and Nano Electro-Hydrodynamic Systems for Rapid CTCs Diagnosis” , 2013 RSC Tokyo International Conference, Chiba, Japan.
- 06/13 **Keynote**, “*Tri-Functional Nanoparticles with Strong SERS for Biosensing*” , Internatin, The 18th Biophysics Conference, Academia Sinica, Taiwan.
- 06/13 **Invited Talk**, “*Nano/Micro Fluidic Systems for Circulating Tumor Cells (CTCs) Rapid Detection and Diagnosis*” , USA Cancer Research Institute on-site Visit, Academia Sinica, Taiwan.
- 05/13 **Plenary Talk**, “*Nano/Micro Fluidic Systems for Circulating Tumor Cells (CTCs) Rapid Detection and Diagnosis*” , 2013 International Symposium on Microchemistry and Microsystems, SuChou, China.
- 03/13 **Invited talk**, “Optofludic Systems for Biomedical Applications” , EE Department, Indian Institute of Technology, Kharahpur, India.
- 03/13 **Plenary Talk**, “Nanofluidic Capillary Electrophoresis Electrochemical (NanoCEEC) Chip Towards The Analysis Of Living Single Cell Releasing” , International Conference on Micro Manufacturing Process, Kolkata, India
- 12/12 **Invited speech**, “Dual-Faced Nano-Mushroomsfor Tri-functional Cell Diagnosis: SEARs/Fluorescence Signaling, Immune Targeting, and Drug Delivering” , Photonics Global Conference (PGC 2012), Dec. 13-16, 2012, Singapore,.
- 12/12 **Invited speech**, “*Nano/Micro Fluidic Systems for Circulating Tumor Cells (CTCs) Rapid Detection and Diagnosis*” , Taiwan-WIN Second Reciprocal Workshop Dec. 5-7, 2012, Hualien, Taiwan,.
- 11/12 **Invited speech**, Fan-Gang Tseng, “From Cosmos To Ultra High Sensitive Single Molecule Nano Array” , National Tsing-Hua Universtiy Day in ZHEJIANG University, Nov. 23, ZHEJIANG University, China.
- 11/12 **Plenary speech**, Fan-Gang Tseng, “From High Efficient Protein Micro Chip Toward Ultra High Sensitive Single Molecule Nano Array” , IEEE MHS-2012 (Micro-nano mechatronics and Human Science), 4-7th November, Noyori Memorial Auditorium, Nagoya University, Japan.
- 10/12 **Invited speech** Fan-Gang Tseng ,*Tri-Functional Nanoparticles with Strong SERS for Biosensing* The 7th IEEE Nanotechnology Material and Devices Conference (IEEE NMDC 2012), October 16-19, 2012, Waikiki Beach, Hawaii, USA.

- 09/12 **Invited speech.**,” Nano/Micro Fluidic Systems for Circulating Tumor Cells (CTCs) Rapid Detection and Diagnosis” , 2012 PT-BMES symposium, sep. 5-6, BME Dept., NTHU,
- 09/12 **keynote**, “Optofluidic Bi-Convex Aspherical lens Shaped by Thermal Energy and Electrostatic force” , The 2nd International Conference on Optofluidics 2012: co-event of chinano 2012 conference and Expo, September 13 - 15, 2012, Dushu Lake Hotel, Suzhou Expo Center, Suzhou China.
- 03/12 **Keynote**, “High performance methanol reforming type micro fuel cell” , 43rd ACS National Meeting that will be held in San Diego, California, March 25-29, 2012.
- 10/11 **Invited talk**, “High performance Micro DMFC” , International Conference on Low Carbon Energy Systems 2011, Dalian, china
- 10/11 **Invited talk**, “High performance Micro DMFC” , International Conference on New Energy, WuHan, china
- 05/11 **Invited talk**, “Design and fabrication of a copolymer aspheric bi-convex lens utilizing thermal energy and electrostatic force in a dynamic fluid” , the 17th Microoptics Conference (MOC '11), Japan.
- 03/11 **Invited talk**, High performance micro DMFC, San Yat San U., Guonchou, China
- 02/11 **Invited talk**, “Nanofluidic Capillary Electrophoresis Electrochemical (NanoCEEC) Chip Towards The Analysis Of Living Single Cell Releasing” , IEEE INEC, Taipei, Taiwan
- 11/10 **Invited talk**, “Ultra High Sensitive Single Molecule Nano Probe” , 2010 International Electron Devices and Materials Symposium (IEDMS 2010), ChungLi, Taiwan.
- 09/10 **Invited talk** , “From High Efficiency Protein Micro Array Toward Ultra High Sensitive Single Molecule Nano Probe” , 2010 The Second International Symposium on Materials for Enabling Nanodevices (ISMEN), UCLA, Los Angeles, USA.
- 08/10 **Invited talk** “Toward the Detection of Single Cell Releasing Through High Efficient Chip Based Nano Fluidic Systems” , 2010 Cross-Strait Micro Nano Technology Conference, Fu-Dan University, Shang-Hai, China.
- 03/10 **Invited talk**, “Toward the Detection of Single Cell Releasing Through High Efficient Chip Based Nano Fluidic Systems” , NTHU-Univ. of Tsukuba Nanotechnology Conference, NTHU, Taiwan.
- 01/10 **Invited talk**, “Toward the Detection of Single Cell Releasing Through High Efficient Chip Based Nano Fluidic Systems” , IEEE NEMS 2010, Xiamen, China.
- 09/09 **Invited talk**, “Ultra High Sensitive Single Protein Nano Array” , Cross-Strait Tsing-Hua University Conference on Nanotechnology and Energy 2009, Tsing Hua Univeristy, Peiking, China.
- 08/09 **Invited talk**, “From High Efficient Protein Micro Chip Toward Ultra High Sensitive Single Protein Nano Array” , EITC 2009, MIT, USA.
- 07/09 **Invited talk**, “A Perfusion-based Micro Opto-fluidic System (PMOFS) with GNP Signal Enhancement for Continuously *In-situ* Immune Sensing” , IEEE NANO 2009, Serrento, Italy.
- 07/09 **Keynote**, “An *in situ* and reusable immune sensing probe based on gold-nanoparticle enhanced fiber-optic interferometry” , WACBE 2009, Hong Kong SAR,China.
- 07/09 **Invited talk**, “Toward the Detection of Single Cell Releasing Through High Efficient Chip Based Nano Fluidic Systems” , Hong Kong University of Science and Technology, Hong Kong SAR, China.
- 06/09 **Keynote**, “From High Efficient Protein Micro Chip Toward Ultra High Sensitive Single Protein Nano Array” , ASME ICNMM 2009, Pohang, Korea.
- 04/09 **Invited talk**, “Bio-inspired Micro-Nano fluidic Systems” , 2009 US-Taiwan symposium on Bio-inspired Systems, National Taiwan University, Taiwan.
- 11/08 **Invited talk**, “From Rapid Protein Micro Array toward Single Protein Nano Array” , 2008 Canada-Taiwan Symposium on Biopharmaceutical and Biotechnology, Vancouver, Canada.
- 10/08 **Invited talk**, “High speed three dimensional ASIC Chip for large format flat panel display” , IMID/IDMC/ASIA DISPLAY 2008, Seoul, Korea.
- 10/08 **Invited talk**, “Single Protein Nano Array” , 2008 Cross strait nano/micro technology conference, Peking, China.
- 06/08 **Invited talk**, “Alternative Energy Systems” , First Symposium on 「France-Taiwan Frontiers of Science」 , Taipei, Taiwan.
- 04/08 **Invited talk**, “From Rapid Protein Micro Array toward Single Protein Nano Array” , BIT Lifesciences' Annual PepCon 2008, Shenzhen, China

- 08/07 **Invited talk**, “From Rapid Protein Micro Array toward Single Protein Nano Array” , IEEE NANO 2007, Hong Kong SAR, China.
- 10/06 **Invited talk**, “Rapid micro stamping system for protein detection” , 21st International Conference on Advanced Science and Technology (ICAST), October 28, 2006, Chicago, USA.
- 06/06 **Invited talk**, “Surface-Tension-Dominant Powerless Nano/Micro Fluidic Systems” , Asia Pacific Conference on Transducers, APCOT’ 06, Singapore.
- 03/06 **Invited talk**, “Surface Tension Driven Nano/Micro Fluidic Systems for Rapid Bio-Assays” , 2nd International Symposium on Micro and Nano Technology (ISMNT2), Hsinchu, Taiwan
- 08/05 **Invited talk**, “Surface-Tension-Dominant Powerless Nano/Micro Fluidic Systems” , ETIS 2005, NTU, Taiwan.
- 10/04 **Invited talk**, “Protein Microarray Chip with Embedded Microchannels” , 7th International Conference on Solid-State and Integrated Circuit Technology (ICSICT 2004), Beijing, China, 2004
- 07/04 **Invited talk**, “Nano/Micro Fluidic Systems-Design, Characterization, and Biomedical Applications” , International Workshop On Nanomechanics, Asilomar Conference Grounds, Pacific Grove, California, USA.
- 04/04 **Invited talk**, “The Applications of AFM on the Characterization of Protein chip and Cell Mechanics” , *Symposium on Nanotechnology for Life Science*, National Taiwan U., Taipei, Taiwan.
- 11/03 **Invited talk**, “Nano/micro Fluidic Systems Applicable for Biotechnology” , 2003 Bio-Nano Technology Symposium, National Cha-Yi U., Cha-Yi, Taiwan.
- 07/03 **Invited talk**, “BioChips for Rapid and High Throughput Disease Diagnosis and Drug Screening” , *Annual meeting of Taiwan Biochip Association*, Academia SINICA, Taipei, Taiwan.
- 05/03 **Invited talk**, “Micro Sensors and Fluidic Systems for Biomedical Applications” , *Chemical Sensing Technology Symposium*, Chang Gung University, Taipei, Taiwan.
- 12/02 **Invited talk**, “Bio-sensors, Bio Chips and Protein Micro Arrays” , *Symposium on the Application of Biochip and Radiological Technology 2002*, Touyen, Nuclear Research Institute, Taiwan.
- 09/02 **Invited talk**, “Micro/Nano Fluids in Protein Microarray and Bio-Diagnosis Systems” , *International Workshop on NanoBiochemistry 2002*, Taipei International Convention Center, Taiwan.
- 07/02 **Invited talk**, “Protein Micro Array and Micro Fluidic System for High Speed and High Throughput Diagnosis” , *Tamkang Symposium in Frontier of Chemistry Series-2002*, Tamkang University, Taipei, Taiwan.
- 05/02 **Invited talk**, “BioMEMS and Micro-Fluidics Researches at NTHU ESS” , *BioMEMS Symposium*, National Cheng-Kung University, Tainan, Taiwan.
- 09/01 **Invited talk**, “Micro TAS and Micro Fluidics System Developed in NTHU ESS” , *International Conference on Taiwan-British MEMS and Optoelectronic Technology*, National Taiwan University, Taipei, Taiwan.

CONFERENCE ORGANIZATION/COMMITTEE MEMBER/CHAIR

- 06/15 **TPC member and Session Chair**, 2015 *Transducers Conference*, Alaska, USA. **(1200 participants)**
- 01/15 **TPC member and Session Chair**, 2015 *IEEE MEMS Conference*, Estoril, Portugal. **(700 participants)**
- 10/14 **TPC member and Session Chair**, Micro TAS 2014, San Antonio, USA. **(1200 participants)**
- 09/14 **Steering Committee Member, TPC member and Session chair**, 15th National Conference of Nanoengineering and Micro System Technology, Taiwan. **(200 participants)**
- 07/14 **Program Committee Member**, 25th International Microprocesses and Nanotechnology Conference, Japan, 2014. **(500 participants)**
- 08/14 **Steering Committee member, Organizing Committee Member and Session Chair**, 2014 5th International Symposium on Microchemistry and Microsystems, Singapore. **(300 participants)**
- 06/14 **Organizing Committee Member and Session Chair**, 2014 IUMRI-ITRC, Taipei. **(600 participants)**

- 06/14 **Organizing Committee Member and Session Chair**, 2014 Advance Micro Nano Fluidics, Academia Sinica, Taipei. **(300 participants)**
- 02/14 **TPC member and Session Chair**, 2013 *IEEE NEMS Conference*, Suchou, China. **(500 participants)**
- 10/13 **TPC member**, Micro TAS 2013, Stuttgart, Germany. **(1200 participants)**
- 09/13 **Steering Committee Member, TPC member and Session chair**, 14th National Conference of Nanoengineering and Micro System Technology, Taiwan. **(200 participants)**
- 07/13 **Program Committee Member**, 25th International Microprocesses and Nanotechnology Conference, Japan, 2013. **(500 participants)**
- 05/13 **Steering Committee member, Organizing Committee Member and Session Chair**, 2013 International Symposium on Microchemistry and Microsystems, SuChou, China. **(400 participants)**
- 02/13 **TPC member and Session Chair**, 2013 *IEEE NEMS Conference*, Suchou, China. **(500 participants)**
- 10/12 **TPC member and poster award judge**, Micro TAS 2012, Okinawa, Japan. **(1200 participants)**
- 09/12 **Steering Committee Member, TPC member and Session chair**, 15th National Conference of Nanoengineering and Micro System Technology, Taiwan. **(200 participants)**
- 07/12 **Program Committee Member**, 24th International Microprocesses and Nanotechnology Conference, Japan, 2012. **(500 participants)**
- 06/12 **General Chair**, 2012 International Symposium on Microchemistry and Microsystems, Hsinchu, Taiwan. **(250 participants)**
- 03/12 **TPC member**, 2012 *APCOT Conference*, **(300 participants)**
- 01/12 **TPC member**, 2012 *IEEE NEMS Conference*, Kyoto, Japan. **(400 participants)**
- 10/11 **TPC member and poster award judge**, Micro TAS 2011, Paris, France. **(1200 participants)**
- 09/11 **Steering Committee Member, TPC member and Session chair**, 14th National Conference of Nanoengineering and Micro System Technology, Taiwan. **(200 participants)**
- 07/11 **Program Committee Member**, 23th International Microprocesses and Nanotechnology Conference, Japan, 2011. **(600 participants)**
- 06/11 **Steering Committee member, Organizing Committee Member, Program Committee Member, and Session Chair**, 2011 International Symposium on Microchemistry and Microsystems, Seoul, Korea. **(300 participants)**
- 06/11 **TPC member and Session Chair**, 2011 *Transducers Conference*, Beijing, China. **(1200 participants)**
- 02/11 **TPC member**, IEEE INEC, Taipei, Taiwan, **(300 participants)**
- 02/11 **Organizing Chair and Session Chair**, 2011 *IEEE NEMS Conference*, Kaohsiung, Taiwan. **(500 participants)**
- 01/11 **TPC member and Session Chair**, 2011 *IEEE MEMS Conference*, Cancun, Mexico. **(700 participants)**
- 11/10 **Organizing Committee member, TPC member**, 2010 Precision Manufacturing Conference, Taipei Medical University, Taipei, Taiwan. **(200 participants)**
- 09/10 **TPC member and Session chair**, 13th National Conference of Nanoengineering and Micro System Technology, National Sun-Yet-Shien University, Kaohsiung, Taiwan. **(200 participants)**
- 08/10 **TPC member and session Chair**, *IEEE NANO 2010*, Seoul, Korea. **(400 participants)**
- 07/10 **Program Committee Member**, 23th International Microprocesses and Nanotechnology Conference, Japan, 2010, **(500 participants)**
- 05/10 **Steering Committee member, Organizing Committee Member, Program Committee Member, and Session Chair**, 2010 International Symposium on Microchemistry and Microsystems, HKUST, Hong-Kong, SAR. **(100 participants)**
- 10/09 **Conference Co-Chair, Program Committee Chair and Session Chair**, 2009 Cross-Strait Micro/Nanotechnology Conference, National Tsing-Hua University, Hsinchu, Taiwan, ROC.
- 08/09 **Program Committee Member and Session Chair**, EITC 2009, MIT, USA.

07/09 **TPC member and session Chair**, *WACBE 2009*, Hong Kong SAR, China.

07/09 **TPC member and session Chair**, *IEEE NANO 2009*, Serrento, Italy.

07/09 **Program Committee Member**, 22th International Microprocesses and Nanotechnology Conference, Japan, 2009

05/09 **Session chair**, 12th National Conference on MicroSystems and Nanotechnology, National Chiao-Tung University, Hsinchu, Taiwan.

07/08 **Program Committee Member**, 21th International Microprocesses and Nanotechnology Conference, Japan, 2008

04/08 **Session Chair**, BIT Lifesciences' First Annual PepCon 2008 Shenzhen, China.

01/08 **TPC member and Session Chair**, *IEEE NEMS Conference*, Sanya, China

11/07 **Session Chair**, IEEE IEDMS conference, NTHU, Taiwan

10/07 **TPC member**, 10th National Conference on MicroSystems and Nanotechnology, Tainan, Taiwan.

08/07 **Organizer, TPC Chair and session Chair**, *IEEE NANOMED 2007*, Hong Kong SAR, China.

08/07 **TPC member and session Chair**, *IEEE NANO 2007*, Hong Kong SAR, China.

01/07 **TPC member and Session Chair**, *IEEE NEMS Conference*, Bangkok, Thailand.

07/07 **Program Committee Member**, 20th International Microprocesses and Nanotechnology Conference, Japan, 2007

06/06 **Session chair**, *Asia Pacific Conference on Transducers (APCOT 2006)*, Singapore.

03/06 **Program Committee and session chair**, 2nd International Symposium on Micro and Nano Technology (*ISMNT2*), March, Hsinchu, Taiwan

07/06 **Program Committee Member**, 19th International Microprocesses and Nanotechnology Conference, Japan, 2006

01/06 **Program Committee and session chair**, *IEEE NEMS Conference*, Zhuhai, China.

11/05 **Session chair**, 9th Nano Engineering and Micro System Technology Conference, Southern Taiwan University of Technology, Tainan, Taiwan.

07/05 **Program Committee and session chair**, *IEEE International Conference on Robotics and Biomimetics (IEEE ROBIO)*, Hong Kong SAR and Macau SAR, China.

12/04 **Program Committee and Session chair**, 8th Nano Engineering and Micro System Technology Conference, National Tsing-Hua University, Taiwan.

04/04 **Technical Committee member and Session chairman**, International Symposium on Nanotechnology and Energy, National Tsing-Hua University, Hsinchu, Taiwan.

11/04 **Technical Committee member**, National Nano technology and Micro Electromechanical System conference, National Tsing-Hua University, Hsinchu, Taiwan.

11/03 **Session chair**, 7th Nano Technology and MEMS conference, National Taiwan University, Taiwan.

11/03 **Session chairman**, National Nano technology and Micro Electromechanical System conference, National Taiwan University, Taipei, Taiwan.

11/02 **Session chairman**, National Nano technology and Micro Electromechanical System conference, National Cheng Kung University, Tainan, Taiwan.

04/02 **Session chairman**, *International Conference on Taiwan-British MEMS and Optoelectronic Technology*, National Taiwan University, Taipei, Taiwan.

04/02 **Session chairman**, *Nano/Micro Technology Conference*, National Tsing Hua University, Hsinchu, Taiwan.

11/01 **Session Chairman**, *MEMS and Nano technology conference*, National Choa-Tong University, Taiwan.

- 06/01 **Session co-chair**, *The 11th International Conference on Solid-State Sensors and actuators (IEEE Transducer' 01)*, Munich, Germany.
- 10/00 **Session chairman**, *International Symposium on Smart Structures and Microsystems 2000 (IS³M 2000)*, Hong Kong.

CONSULTANTS

Institute of Electronic and Communication (ITRI), Micro System Technology Center (ITRI), Mechanical Institute (ITRI), Materials Science and Chemical Engineering Institute (ITRI), Energy and Resources Institute (ITRI), Ingent Coperation, ITRC, TSMC, Taiwan, AUO Inc., Taiwan, BenQ Inc., Taiwan, Physics Optical Corporation, USA, Micro Fluidics Corporation, USA, Micro Fabrica Corporation, USA.