Tza-Huei Jeff Wang

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Address: 3400 N. Charles St. / Latrobe 108, Baltimore, MD 21218
Departments of Mechanical Engineering, Biomedical Engineering and Oncology
Johns Hopkins University, Baltimore, MD 21218
Phone: (410) 516-7086
Fax: (410) 516-7254
Email: thwang@jhu.edu
http://www.me.jhu.edu/~thwang/

EDUCATION

Ph.D. in Mechanical Engineering from University of California, Los Angeles 1998-2002

M.S. in Mechanical Engineering from National Taiwan University 1992-1994

B.S. in Mechanical Engineering from National Taiwan University 1988-1992

PROFESSIONAL EMPLOYMENT

Professor 07/13-
Whiting School of Engineering
School of Medicine
Johns Hopkins University

Associate Professor 10/09-06/13
Sidney Kimmel Comprehensive Cancer Center
Johns Hopkins School of Medicine

Associate Professor 07/08-06/13
Whiting School of Engineering
Johns Hopkins University

Assistant Professor 11/02-06/08
Whiting School of Engineering
Johns Hopkins University

Graduate Research Assistant 09/98-10/02
Mechanical and Aerospace Engineering Department
University of California, Los Angeles

Manufacturing Engineer / Project Coordinator 06/96-07/98
Taiwan Semiconductor Manufacturing Company (TSMC)

Second Lieutenant / Maintenance Engineer 07/94-06/96
Marine Army of Taiwan, R.O.C.

AWARDS AND HONORS

2018 Elected to **Fellow of Royal Society of Chemistry (RSC)**

2018 Elected to **Fellow of American Society of Mechanical Engineers (ASME)**

2018 Johns Hopkins Discovery Award

2017 Elected to **Fellow of American Institute for Medical and Biological Engineering (AIMBE)**

2017 **MicroTAS Video Award**, 21st International Conference on Miniaturized Systems for Chemistry and Life Sciences

2017 **Cohen Translational Engineering Award**

2017 Mentor for **Siebel Scholar Award** (S.M. Friedrich)

2017 Mentor for **Burroughs Wellcome Fund Collaborative Research Travel Grant** (W. Hsieh)

2017 Mentor for **Hartwell Biomedical Research Fellowship** (W. Hsieh)

2016 **Best Paper Award**, The 29th IEEE International Conference on Micro Electro Mechanical Systems (MEMS 2016)

2015 **Johns Hopkins Discovery Award**

2015 Mentor for **Siebel Scholar Award** (D.J. Shin)

2013 **JALA & JBS Art of Science Award**, SLAS 2013 Conference

2013 Mentor for **Burroughs Wellcome Fund Career Award** at the Scientific Interface (S. Fraley)

2013 Mentor for **Siebel Scholar Award** (T. Rane)

2012 **Best Paper Award**, The 6th IEEE International Conference on Nano/Molecular Medicine and Engineering (IEEE NANOMED 2012)

2012 **NIST/Lab on a Chip Art in Science Award** – 2012 micro TAS Conference

2012 Mentor for **Siebel Scholar Award** (Y. Zhang)

2011 **JALA Ten Award,** Journal of Laboratory Automation, Society for Laboratory Automation and Screening

2011 **Best Paper Award**, The 6th Annual IEEE International Conference on Nano/Micro Engineered and Molecular Systems (IEEE NEMS 2011)

2011 **NIST/Lab on a Chip Art in Science Award** – 2011 microTAS Conference

2011 Mentor for **Early Career Award from the Thrasher Research Fund** (S. Park)

2010 **Best Poster Award,** The 4th Annual INBT NanoBio Symposium

2010 Mentor for **Siebel Scholar Award** (K. Liu)

2009 **Johns Hopkins University WSE Leadership Award**

2009 **Best Poster Award,** The 3rd Annual INBT NanoBio Symposium

2009 Mentor for **Siebel Scholar Award** (V. Bailey)

2007 **CRS Jorge Heller Award,** Journal of Controlled Release Outstanding Paper Award

2006 **CAREER Award**, National Science Foundation

RESEARCH AND TEACHING INTERESTS

Research aimed at developing new molecular analysis technologies via advances in micro- and nano-scale science and technologies for biomedical and environmental applications. General interests include: Bio-MEMS and microfluidic systems, functional materials-based biosensors, single-molecule detection and manipulation, and fluorescence spectroscopy. Teaching emphasizes engineering and physics

fundamentals through instruction of interdisciplinary courses and labs. Interests include microfabrication principles and labs, micro/nano-sciences and technologies, MEMS, and mechanics-based design.

PATENTS

1. T.H. Wang and D. Shin, "A disposable reagent scaffold for biochemical process integration" (JHU Ref. C15098)
2. T.H. Wang, L. Chen, A. Pornpat, K. Hsieh, "Streamlined Platform for Bacterial Identification and Antimicrobial Susceptibility Test" (JHU Ref. C14377)
3. T.H. Wang, B. Axt, Y.F. Hsieh, H. Zec, A. Kaushik, W. Hsieh, "Impedance Based Feedback Control of Microfluidic Valves" (PCT/US-2018-0304267-A1; JHU Ref. C14119)
4. T.H. Wang, F.M. Friedrich, J.M. Burke, and K. Liu, "Concentration and Accumulation of Target Species in Response to a Gradient of Solute or Solvent" (JHU Ref. C13791; US provisional patent)
5. A. Hulbert, J.G. Herman, M. Brock, T.H. Wang and A. Stark "Compositions and methods for Detecting and Diagnosing Neoplasia" (JHU Ref. C13599; US 15/910,629)
6. N. Ahuja, S. Baylin, J.G. Herman, J. Wang, V. Bailey and M. Yi "Compositions and methods for Detecting a Neoplasia" (PCT/US2011/037926; WO2011150075)
7. T.H. Wang, K. Hsieh, H. Zec, L. Liu, A.M. Kaushik, Y. Yun, "Multiplexed, Continuous-flow, droplet-based platform for high-throughput genetic detection" (JHU Ref. C13529; US20160298173 A1)
8. T.H. Wang, T.D. Rane, H.C Zec, "System and device for high throughput generation of combinatorial droplets and methods of use" (PCT/US2015/012927; JHU Ref. C12862)
9. T.H. Wang, D.J. Shin, "Self-contained cartridge and methods for integrated biochemical assay at the point-of-care" (US9,463,461, US 14/523,412, JHU Ref. C12720)
10. T.-H. Wang, S. Yang, M.A. Jacobs, P. Athamanolap, S.I. Fraley, V. Agarwal, V. Parekh. "Melt curve classifier for reliable large-scale genotyping of sequence variants" JHU Case Number C12600, provisional patent
11. Stephanie I. Fraley, T.-H. Wang, and S. Yang. "A novel technology for broad-based, yet single molecule sensitive profiling in heterogeneous biological samples." JHU Case Number C12403, provisional patent
12. T.H. Wang, Y. Zhang, "Fabrication of Hierarchical Silica Nanomembrane using Heat-Shrinking Polymers and Applications of Silica Nanomembrane for the Solid Phase Extraction of Nucleic Acids", JHU Case Number C12404, provisional patent
13. T.H. Wang, Chi-Hang Chiou, Dong Jin Shin , "Electromagnetically Actuated Droplet Microfluidic Chip and System" (JHU Ref. C12262)
14. T.H. Wang and Y. Zhang, "Surface Energy Traps (SETs) Enabled Complex Droplet Manipulation" (JHU Ref. C11971)
15. T.H. Wang, K. Liu and Y. Song, "miRNA Analysis Method" (US Provisional US 61/598513, JHU Ref. C11885)
16. T.H. Wang, T.D. Rane, H. C. Zec and W.Ch. Chu "Systems and methods for screening a library of samples" (US20130165346 A1, US13/708,510, JHU Ref. C11803)
17. S. Yang, T.H. Wang, S.K. Park and Y Zhang, "Method and apparatus for continuous microfluidic sample separation and concentration using AC electric field" (JHU Ref. C11562)

18. T.H. Wang, Y. Zhang, S. Park and S. Yang, "Self-sustained Fluidic Droplet Cassette and System for Biochemical Assays" (WO2012018623A2 , PCT/US2011/045363, JHU Ref. C11183)
19. T.H. Wang, H.Q. Mao, W. Beh and D. Kraitchman, "Systems and Methods for High-Throughput Microfluidic Bead Production" (PCT/US2011/054598, JHU Ref. C11248)
20. N. Ahuja, V. Bailey, S.B. Baylin, J.G. Herman, T.H. Wang, J. Yi, "Early Detection of DNA Methylation Biomarker in Cancer Patient Sera" (PCT/US2011/037926, JHU Ref. C11091)
21. T.H. Wang and K. Liu, "Hydrodynamic Particle Separation and Detection Systems and Methods", (PCT/US2011/056941, JHU Ref. C11263)
22. T.H. Wang and K.J. Liu, "Single Molecule Spectroscopy for Analysis of Cell-free Nucleic Acid Biomarkers" (PCT/US2010/033888, JHU Ref. C10750)
23. T.H. Wang and Y. Zhang, " Device and Method of Preparing and Performing Multiple Polymerase Chain Reactions" (US 12/716,031, JHU Ref. C10659)
24. T.H. Wang, S. Baylin, J. Herman, H. Easwaran and H. Carraway, "Compositions and Methods for Polynucleotide Extraction and Methylation Detection" (PCT/US2009/000039, JHU Ref. C10249)
25. C.M. Ho and T.H. Wang, "Biosensors and Methods for Their Use" (PCT/US2001/025444)
26. T.H. Wang, K.J. Liu, and I.M. Shih, " DNA Integrity Assay (DIA) for Cancer Diagnostics, Using Confocal Fluorescence Spectroscopy" (US8,835,110, JHU Ref. C10534)
27. T.H. Wang and K. Liu, "Cylindrical Illumination Confocal Spectroscopy System" (US8,248,609, JHU Ref. C10398)
28. T.H. Wang, K.J. Liu, C.M. Puleo and T. Rane, " Microfluidic System for High-Throughput, Droplet-based, Single Molecule Analysis with Low Reagent Consumption" (US9,284,601, issued on 03/15/2016, JHU Ref. C10662)
29. J.F. Miller, J. Huang, T.H. Wang, C.M. Ho and M. Liu, "Electrochemical Detection of Mismatch in Nucleic Acids" (US 7,291,457)
30. T.H. Wang, "Method for determining standard cycle time of a stage dynamically" (US5,825,650)

PUBLICATIONS

Journal Articles

1. Y. Zhang, L. Chen, K. Hsieh and T.H. Wang, "Ratiometric Fluorescence Coding for Multiplex Nucleic Acid Amplification Testing" *Analytical Chemistry*, 90(20):12180-12186, 2018
2. C.M. O'Keefe, T.R. Pisanic, H. Zec, M.J. Overman, J.G. Herman, T.H. Wang, "Facile profiling of molecular heterogeneity by microfluidic digital melt" *Science Advances*, 4(9): eaat6459, 2018
3. L. Chen, D.J. Shin, S. Zheng, J.H. Melendez, C. Gaydos, T.H. Wang, "Direct-qPCR Assay for Coupled Identification and Antimicrobial Susceptibility Testing of Neisseria gonorrhoeae", *ACS infectious diseases*, 4(9):1377-1384, 2018
4. C.W. Beh, Y. Zhang, Y.L. Zheng, B. Sun, T.H. Wang, "Fluorescence spectroscopic detection and measurement of single telomere molecules", *Nucleic Acids Research*, 46(19): e117, 2018
5. N. Andini, A. Hu, L. Zhou, S. Cogill, T.H. Wang, C.T. Wittwer, S. Yang, "A "Culture" Shift: Broad Bacterial Detection, Identification, and Antimicrobial Susceptibility Testing Directly from Whole Blood", *Clinical Chemistry*, 64(10):1453-1462, 2018

6. J. Song, J. Dailey, H. Li, H.J. Jang, L. Russell, P. Zhang, P.C. Searson, T.H. Wang, A.D. Everett, H.E. Katz, "Influence of Bioreceptor Layer Structure on Myelin Basic Protein Detection using Organic Field Effect Transistor-Based Biosensors", *Advanced Functional Materials*, 1802605, 2018

7. K. Hsieh, H.C. Zec, L. Chen, A.M. Kaushik, K.E. Mach, J.C. Liao, T.H. Wang, "Simple and Precise Counting of Viable Bacteria by Resazurin-Amplified Picoarray Detection", *Analytical Chemistry*, 90 (15): 9449-9456, 2018

8. C. Surrette, B. Scherer, A. Corwin, G. Grossmann, A.M. Kaushik, K. Hsieh, P. Zhang, J.C. Liao, P.K. Wong, T.H. Wang, C.M. Puleo, "Rapid Microbiology Screening in Pharmaceutical Workflows", *SLAS TECHNOLOGY: Translating Life Sciences Innovation*, 23(4): 387-394, 2018

9. T.R. Pisanic, L. Cope, S.F. Lin, T.T. Yen, P. Athamanolap, R. Asaka, K. Nakayama, A.N. Fader, T.H. Wang, I.M. Shih, T.L. Wang, "Methylomic analysis of ovarian cancers identifies tumor-specific alterations readily detectable in early precursor lesions", *Clinical Cancer Research*, (epub ahaead of print), 2018

10. A.M. Kaushik, K. Hsieh, T.H. Wang, "Droplet microfluidics for high-sensitivity and high-throughput detection and screening of disease biomarkers", *Wiley Interdisciplinary Reviews: Nanomedicine and Nanobiotechnology*, e1522, 2018

11. D.J, Shin, A.Y. Trick, Y.H. Hsieh, D.L. Thomas, T.H. Wang, "Sample-to-Answer Droplet Magnetofluidic Platform for Point-of-Care Hepatitis C Viral Load Quantitation", *Scientific Reports*, 8 (1):9793, 2018

12. D.J. Shin, M. Lewis, Y.H. Hsieh, N.A. Rahmoun, C.A. Gaydos, T.H, Wang, R. Rothman, "Healthcare Worker Feedback on a Prototype Smartphone-based Point-of-care Test Platform for Use in Episodic Care", *Point of Care*, 17 (2): 63-65, 2018

13. H.C. Zec, T. Zheng, L. Liu, K. Hsieh, T.D. Rane, T.H. Wang, "Programmable microfluidic genotyping of plant DNA samples for marker-assisted selection," *Microsystems & Nanoengineering*, 4:17097, 2018

14. A. Stark, D.J. Shin, T.H. Wang, "A sample-to-answer droplet magnetofluidic assay platform for quantitative methylation-specific PCR", *Biomedical Microdevices*, 20(2):31, 2018

15. P. Athamanolap, K. Hsieh, L. Chen, S. Yang, T.H. Wang, "Integrated Bacterial Identification and Antimicrobial Susceptibility Testing using PCR and High-Resolution Melt", *Analytical Chemistry*, 89(21): 11529-11536, 2017

16. S.M. Friedrich, J.M Burke, K.J. Liu, C.F. Ivory, T.H. Wang, "Molecular Rheotaxis Directs DNA Migration and Concentration Against a Pressure-Driven Flow", *Nature Communications*, 8:1213, 2017

17. M. Davenport, K. Mach, L. Shortliffe, N. Banaei, T.H. Wang, and J. Liao, "New and Developing Diagnostic Technologies for Urinary Tract Infections" *Nature Reviews Urology*, 14(5):296-310, 2017

18. Y. Song, D. Kilburn, J.H. Song, Y. Cheng, C.T. Saeui, D.G. Cheung, C. Croce, K.J. Yarema, S. Meltzer, K.J Liu, T.H. Wang, "Determination of Absolute Expression Profiles Using Multiplexed miRNA Analysis", *PLOS One*; 12(7): e0180988, 2017

19. D.J. Shin, P. Athamanolap, L. Chen, J. Hardick, M. Lewis, Y.H. Hsieh, R.E. Rothman, C.A. Gaydos and T.H. Wang, "Mobile nucleic acid amplification testing (mobiNAAT) for Chlamydia trachomatis screening in hospital emergency department settings", *Scientific Reports*, 7(4495), 2017

20. A.M. Kaushik, K. Hsieh, L. Chen, D.J. Shin, J. Liao and T.H. Wang, "Accelerating bacterial growth detection and antimicrobial susceptibility assessment in integrated picoliter droplet platform", *Biosensors and Bioelectronics*, 15 (97):260-266, 2017

21. B. Axt, Y.F. Hsieh, H. Zec and T.H. Wang, "Impedance Feedback Control of Microfluidic Valves for Reliable High Throughput Processing", *Biomedical Microdevices*, 19(3):61, 2017

22. A. Hulbert, I.J. Torres, A. Stark, C. Chen, K. Rodgers, B. Lee, C. Griffin, A. Yang, P. Huang, J. Wrangle, S.A. Belinsky, T.H. Wang, S.C. Yang, S.B. Baylin, M.V. Brock and J.G. Herman," Early Detection of Lung Cancer using DNA Promoter Hypermethylation in Plasma and Sputum", *Clinical Cancer Research*, 23(8):1998-2005, 2017

23. N. Andini , B. Wang , P. Athamanolap , J. Hardick , B.J Masek , S. Thair , A. Hu , G. Avornu , S. Peterson , S. Cogill , R.E. Rothman , K.C. Carroll , C. Gaydos , T.H. Wang , S. Batzoglou. S, Yang, "Microbial Typing by Machine Learned DNA Melt Signatures" *Scientific Reports*, 7(42097), 2017

24. L. Rao, Q. Meng, L. Bu, B. Cai, Q. Huang, Z. Sun, W. Zhang, A. Li , S. Guo, W. Liu, T.H. Wang, X. Zhao, "Erythrocyte Membrane-Coated Upconversion Nanoparticles with Minimal Protein Adsorption for Enhanced Tumor Imaging" *ACS Appl. Mater. Interfaces*, 9 (3): 2159–2168, 2017

25. D. Kilburn, Y. Song, T.H. Wang, K.J. Liu, "A Multiplex Ligation Assay for miRNA Copy Number Profiling", *Methods in Molecular Biology*, 1509:185-19, 2017

26. T.R. Pisanic, P. Athamanolap, T.H. Wang, "Defining, Distinguishing and Detecting the Contribution of Heterogeneous Methylation to Cancer Heterogeneity", *Semin Cell Dev Biol*, 64: 5-17, 2017

27. Y. Zhang, Y. Zhang, J.M. Burke, K. Gleitsman, S.M. Friedrich, K. J. Liu, T.H. Wang "A Simple Thermoplastic Substrate Containing Hierarchical Silica Lamellae for High-Molecular-Weight DNA Extraction", *Advanced Materials*, 28: 10630-10636, 2016

28. P.F. Carleton, S. Schachter, J.A. Parrish, J.M. Collins, J. B. Crocker, R.F. Dixon, S. Edgman-Levitan, K.B. Lewandrowski, J.E. Stahl, C. Klapperich, M. Cabodi, C.A. Gaydos, A.M. Rompalo, Y. Manabe, T.H. Wang, R. Rothman, C.D. Geddes, L. Widdice, J. Jackman, R.A. Mathura, and T.B. Lash, "National Institute of Biomedical Imaging and Bioengineering Point-of-Care Technology Research Network: Advancing Precision Medicine", *IEEE J Transl Eng Health Med*. 4:2800614, 2016

29. J.L. Santos, Y. Ren, J. Vandermark, M.M. Archang, J.M. Williford, H.W. Liu, J. Lee, T.H. Wang and H.Q. Mao," Continuous Production of Discrete Plasmid DNA-Polycation Nanoparticles Using Flash Nanocomplexation", *Small*, 12(45): 6214-6222, 2016

30. Y.H. Lao, C.C. Chi, S.M. Friedrich, K. Peck, T.H. Wang, K.W. Leong and L.C. Chen, "Signal-on Protein Detection via Dye Translocation between Aptamer and Quantum Dot", *ACS Applied Materials & Interfaces*, 8(19):12048-12055, 2016

31. S.M. Friedrich, K.J. Liu and T.H. Wang, "Single Molecule Hydrodynamic Separation Allows Sensitive and Quantitative Analysis of DNA Conformation and Binding Interactions in Free Solution", *Journal of the American Chemical Society*, 138(1):319-327, 2016

32. L. Rao, L.L. Bu, J.H. Xu, A. Li, W.F. Zhang, Z.J. Sun, S.S. Guo, W. Liu, T.H. Wang, X.Z. Zhao, "Cancer Cell Membrane-Coated Upconversion Nanoprobes for Highly Specific Tumor Imaging" *Advanced Materials*, 28(18): 3460-3466, 2016

33. S.M. Friedrich, H. Zec and T.H. Wang, "Analysis of Single Nucleic Acid Molecules in Micro- and Nano-Fluidics," *Lab on a Chip*, 16: 790-811, 2016

34. A. Stark, D.J. Shin, T. Pisanic II, K.W. Hsieh and T.H. Wang, "A parallelized microfluidic DNA bisulfite conversion module for streamlined methylation analysis", *Biomedical Microdevices*, 18(1):5, 2016

35. S.I. Fraley, P. Athamanolap, B.J. Masek, J. Hardick, K.C. Carroll, Y.H. Hsieh, R.E. Rothman, C.A. Gaydos, T.H. Wang and S. Yang, "Nested Machine Learning Facilitates Increased Sequence Content for Large-Scale Automated High Resolution Melt Genotyping", *Scientific Report*, 6(19218), 2016

36. L. Rao, LL. Bu, J.H. Xu, BV. Cai, G.T. Yu, X.L. Yu, Z.B. He, Q.Q. Huang, A. Li, S.S. Guo, W.F. Zhang, W. Liu, Z.J. Sun, H. Wang, T.H. Wang, X.Z. Zhao, "Red Blood Cell Membrane as a Biomimetic Nanocoating for Prolonged Circulation Time and Reduced Accelerated Blood Clearance" *Small*, 11(46): 6225-6236, 2015
37. Y. Song, K.J. Liu, T.H. Wang, "Efficient synthesis of stably adenylated DNA and RNA adapters for microRNA capture using T4 RNA ligase 1", *Scientific Report*, 5(13620), 2015
38. W. Guan, L. Chen, T.D. Rane and T.H. Wang, "Droplet Digital Enzyme-Linked Oligonucleotide Hybridization Assay for Absolute RNA Quantification", *Scientific Report*, 5(13795), 2015
39. K. Hsieh, H.C. Zec, P.C. Ma, T.D. Rane and T.H. Wang, "Enhancing Throughput of Combinatorial Droplet Devices via Droplet Bifurcation, Parallelized Droplet Fusion, and Parallelized Detection", *Micromachines*, 6(10):1490-1504, 2015
40. T.R. Pisanic, P. Athamanolap, W. Poh, C. Chen, A. Hulbert, M.V. Brock, J.G. Herman and T.H. Wang, "DREAMing: a simple and ultrasensitive method for assessing intratumor epigenetic heterogeneity directly from liquid biopsies", *Nucleic Acids Research*, 43(22):e154, 2015
41. Y. Zhang and T.H. Wang, "High-Resolution Quantification by Charge-Dominant Electrophoretic Mobility Shift of Quantum Dots", *Electrophoresis* ; 36(7-8): 1011-1015, 2015
42. T.D. Rane, H.C. Zec and T.H. Wang," A barcode-free combinatorial screening platform for matrix metalloproteinase screening", *Analytical Chemistry* ; 87(3): 1950-1956, 2015
43. T.D. Rane, L. Chen, H.C. Zec and T.H. Wang, "Microfluidic continuous flow digital loop-mediated isothermal amplification (LAMP)", *Lab on a Chip*, 15:776-782, 2015
44. P. Athamanolap, V. Parekh, S.I. Fraley, V. Agarwal, D.J. Shin, M.A. Jacobs, T.H. Wang, S. Yang, "Trainable High Resolution Melt Curve Machine Learning Classifier for Large-Scale Reliable Genotyping of Sequence Variants, *PLOS One*, 9(1), e109094, 2014
45. C.W. Beh, D. Pan, J. Lee, X. Jiang, K.J. Liu, H.Q. Mao, T.H. Wang, "Direct Interrogation of DNA Content Distribution in Nanoparticles by a Novel Microfluidics-based Single-Particle Analysis", *Nano Letters*, 14(8):4729-2735, 2014
46. D.J. Shin and T.H. Wang, "Magnetic droplet manipulation platforms for nucleic acid detection at the point of care", *Annals of Biomedical Engineering* , 42(11):2289-302, 2014
47. H. Zec, D.J. Shin and T.H. Wang, "Novel droplet platforms for the detection of disease biomarkers", *Expert Review of Molecular Diagnostics*, 14(7):787-801, 2014
48. A. A. Guzzetta, T.R. Pisanic II, P. Sharma, J.M. Yi, A. Stark, T.H. Wang, N. Ahuja," The promise of methylation on beads for cancer detection and treatment" *Expert Review of Molecular Diagnostics*. 14(7):845-52, 2014
49. Y. Song, K. Liu and T.H. Wang, "Elimination of Ligation Dependent Artifacts in T4 RNA Ligase to Achieve High Efficiency and Low Bias microRNA Capture", *PLoS One*, 9(4):e94619, 2014
50. D.J. Shin, Y Zhang and T.H. Wang, "A droplet microfluidic approach to single-stream nucleic acid isolation and mutation detection", *Microfluidics and Nanofluidics*, 17:425-430, 2014
51. T.R. Pisanic, Y. Zhang and T.H. Wang, "Quantum Dots in Diagnostics and Detection: Principles and Paradigms", *Analyst*,139:2968-2981, 2014
52. L. Zhang, Y. Song, T. Fujita, Y. Zhang, M. Chen, and T.H. Wang, "Large Enhancement of Quantum Dot Fluorescence by Highly Scalable Nanoporous Gold", *Advanced Material*, 26(8): 1289-1294, 2014

53. D.D. Nalayanda, W.B. Fulton, P.M. Colombani, T.H. Wang, F. Abdullah," Pressure induced alveolar disruption in a novel in vitro model of the alveolar interface: protective effect of dexamethasone", *Journal of Pediatric Surgery*, 49(1):61-65, 2014

54. P. Athamanolap, D.J. Shin, T.H. Wang," Droplet Array Platform for High Resolution Melt Analysis of DNA Methylation Density", *Journal of Laboratory Automation*, 19(3):304-312, 2014

55. Y. Zhang, D.J. Shin and T.H. Wang, "Serial Dilution via Surface Energy Trap-Assisted Magnetic Droplet Manipulation", *Lab on a Chip*, 13, 4827, 2013

56. S. Fraley, J. Hardick, B.J. Masek, P. Athamanolap, R. Rothman, C.A. Gaydos, K.C. Carroll, T. Wakefield, T.H. Wang, S. Yang, "Universal Digital High Resolution Melt: A novel approach to broad based profiling of heterogeneous biological samples", *Nucleic Acids Research* , 41(18):e175, 2013

57. J.M. Yi, A. A. Guzzetta, V.J. Bailey, S.R. Downing, L. van Neste, K.B. Chiappinelli, B.P. Keeley , A. Stark, A. Herrera, C. Wolfgang, E.P. Pappou, C.A. Iacobuzio-Donahue, M.G. Goggins, J.G. Herman, T.H. Wang, S.B. Baylin, N. Ahuja, "Novel Methylation Biomarker Panel for the Early Detection of Pancreatic Cancer", *Clinical Cancer Research*, 19(23):6544-55, 2013

58. B. Keeley, A. Stark, T.R. Pisanic II, R. Kwak, Y. Zhang, J. Wrangle, S.B. Baylin, J.G. Herman, N. Ahuja, M.V. Brock, T.H. Wang, "Extraction and processing of circulating DNA from large sample volumes using methylation on beads for the detection of rare epigenetic events", *Clinica Chimica Acta*, 425:169-175, 2013

59. T.H. Wang, "Micro and Nanotechnologies Enhanced Biomolecular Sensing", *Biosensors*, 3, 283-285, 2013

60. C.H. Chiou, D.J. Shin, Y. Zhang and T.H. Wang, "Topography-Assisted Electromagnetic Platform for Blood-to-PCR in a Droplet", *Biosensors and Bioelectronics*, 50, 91-99, 2013

61. D.D. Nalayanda, W.B. Fulton, T.H. Wang and F. Abdullah, "A multiphase fluidic platform for studying ventilator-induced injury of the pulmonary epithelial barrier", Integrative Biology, 5, 1141-1148, 2013

62. Y. Zhang and T.H. Wang, "Full-Range Magnetic Manipulation of Droplets via Surface Energy Traps Enables Complex Bioassays", *Advanced Materials*, 25(21), 2903-2908, 2013

63. Y. Song, Y. Zhang and T.H. Wang, "Single Quantum Dot Analysis Enables Multiplexed Point Mutation Detection by Gap Ligase Chain Reaction", *Small*, 9(7), 1096-1105, 2013

64. T.H. Wang, "Discerning Single Molecule Interactions of DNA and Quantum Dots", *Biotechnology Journal*, 8(1), 15-16, 2013

65. H.C. Zec, T.D. Rane and T.H. Wang, "Microfluidic platform for on-demand generation of spatially indexed combinatorial droplets", *Lab on a Chip*, 12, 3055-3062, 2012

66. T.D. Rane, H.C. Zec, C. Puleo, A.P. Lee and T.H. Wang, "Droplet microfluidics for amplification-free genetic detection of single cells", *Lab on a Chip*, 12, 3341-3347, 2012

67. C.W. Beh, W. Zhou and T.H. Wang, "PDMS-Glass bonding using grafted polymeric adhesive - Alternative process flow for compatibility with patterned biological molecules", *Lab on a Chip*, 12, 4120-4127, 2012

68. T.D. Rane, H.C. Zec and T.H. Wang, "A Serial Sample Loading System: Interfacing Multiwell plates with Microfluidic Devices", *Journal of Laboratory Automation*, 17(5), 370-377, 2012

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Book Chapters

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2. T.H. Wang, C.M. Puleo and H.C. Yeh, "Single Molecule DNA Detection", Chapter 11 in "Integrated Biochips for DNA Analysis", edited by R. Liu and A. Lee, Landes Bioscience Publishers, 2007
3. K. Liu, Y.P. Ho and T.H. Wang, "Nanoparticle-based Sensor Assemblies for Biomolecules detection", in "Bottom-Up Nanofabrication: Supramolecules, Self-Assemblies, and Organized Films" edited by H.S. Nalwa and K. Argia, American Scientific Publishers, 2007
4. T.H. Wang and C.M. Ho, " Nano/Micro Technologies for Detecting a Single DNA Molecule", Chapter 32 in "Frontiers in Biomedical Engineering" edited by N.H.C. Hwang and S. L-Y. Woo, Kluwer Academic / Plenum Publishers, 2003

Conference Abstracts

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2. F. Chen, D.J. Shin and T.H. Wang, “ SNP Genotyping Analysis on a Laboratory-Free Sample-to-Answer Magnetofluidic Platform”, Biomedical Engineering Society 2018 Annual Meeting, Atlanta, GA, 17-20 Oct, 2018.
3. S, Kambhampati, A. Ainechi, S. Kyranakis, E. Cai, H. Dashora, A. Park, J. Shen, S. Zhang, J. Powers, M. Zwernermann, A. Kaushik, J.Wang, R. Chai, G. Ying, Y.Zhang, L. Silwick, A. Nodel, Camilo Molina, I. Suk, N. Gorelick, B. Tyler, Y. Yazdi, N. Theodore, and A. Manbachi. "Applications of Doppler ultrasound to measurement of spinal cord blood flow in spinal cord injuries." Biomedical Engineering Society 2018 Annual Meeting, Atlanta, GA, 17-20 Oct, 2018.
4. Xitiz Chamling, Alyssa Kallman, Cindy Berlinicke, Valentin Sluch, Calvin Chang, Itzy Morales, Aniruddha M. Kaushik, Liben Chen, Hai-Quan Mao, Katie Whartenby, Tza-Huei Wang, Peter Calabresi, and Donald Zack. “Using genome engineered human OPCs for single cell transciptome profiling and small molecules screening.” 2018 Myelin Gordon Research Conference, Ventura, CA, 18-23 Mar 2018
5. J. Cheng, M. Liu, A.M. Kaushik, X. Chang, Y. Duan, L. Chen, T.H. Wang, C. Berlinicke, D.J. Zack. “Single-cell transcriptome profiling of human stem cell-derived retinal ganglion cells in a dominant optic atrophy model.” The Association for Research in Vision and Ophthamology 2018 Annual Meeting, Honolulu, HI, 29 Apr – 03 May 2018.
6. A. Kallman, A.M. Kaushik, M. Liu, B. Hansen, E.E. Capowski, L. Chen, J. Cheng, K. Wahlin, M.W. Hu, L. Goff, J. Qian, D. Gamm, T.H. Wang, C. Berlinicke, and D.J. Zack. “Single-cell transcriptomic analysis of human and murine NRL-null retinas.” The Association for Research in Vision and Ophthamology 2018 Annual Meeting, Honolulu, HI, 29 Apr – 03 May 2018.
7. A. Kallman, A.M. Kaushik, M. Liu, B. Hansen, E.E. Capowski, L. Chen, J. Cheng, K. Wahlin, M.W. Hu, L. Goff, J. Qian, D. Gamm, T.H. Wang, D.J. Zack, and C. Berlinicke. “Single-cell transcriptomic analysis of stem-cell derived retinal cups.” Annual Maryland Stem Cell Research Symposium 2017, Baltimore, MD, 25 Oct 2017.
8. C. O’Keefe, T. Pisanic and T.H. Wang, “Ultra-Sensitive Digital Detection of Epigenetic DNA Methylation Heterogeneity”, 2017 BMES Annual Meeting, Biomedical Engineering Society, 2017
9. K. Hsieh, H.C. Zec, L. Chen, A. Kaushik and T.H. Wang, “Advancing Antibiotic Susceptibility Testing via Single-Cell Broth Picodilution”, ASM Microbe 2017, American Society of Microbiology, 2017
10. Y. Zhang, Y. Zhang, J. Burke, K. Gleitsman, S. Friedrich, K. Liu, and T.H. Wang. "Fabricating Hierarchical Silica Lamella by Heat-Induced Shrinking for High-Molecular Weight DNA Extraction," 12th IEEE International Conference on Nano/Micro Engineered and Molecular Systems (IEEE NEMS 2017), 2017
11. A. Kaushik, K. Hsieh, L. Chen, DJ Shin, T.H. Wang. "Integrated Single-Cell Picoliter Droplet Platform for Rapid Evaluation of Bacterial Growth and Antibiotic Susceptibility," 12th IEEE International Conference on Nano/Micro Engineered and Molecular Systems (IEEE NEMS 2017), 2017
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13. C. O'Keefe, T. Pisanic II, P. Athamanolop, H. Zec, T.H. Wang, "Microfluidic Digital Melt Array for Accessing Rare Methylation Biomarkers in Cancer" 2016 Biomedical Engineering Society Meeting (BMES), 2016
14. C. F. Ivory, J. M. Burke, S. M. Friedrich, T-H Wang, and K. J. Liu, " Extraction, Concentration and Separation of dsDNAs using Open Capillary Without An Applied Electric Field", The 43rd Annual North American Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) (SciX 2016), (September 20, 2016)
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17. Y. Zhang, Y. Zhang, K. Liu and T.H. Wang, "Heat-Shrunken Hierarchical Silica Nanomembrane for Solid Phase DNA Extraction", NanoEngineering for Medicine and Biology Conference (NEMB), 2016
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36. Y. Zhang and T.H. Wang, "High Resolution Genetic and Epigenetic Analysis by Mapping DNA Quantity into Electrophoretic Mobility through Quantum Dot Nanotether", *ACS Colloids and Surfaces Symposium*, 2012

37. C. Weiss, P.A. DiCamillo, C.W. Beh, T.H. Wang, H.Q. Mao, D. Kraitchman, "Gastric artery embolization with X-ray-visible embolic beads and c-arm cone beam CT for increased accuracy," *Annual Scientific Meeting of Society of Interventional Radiology (SIR)*, 2012

38. T.H. Wang, "Quantum dots and Microfluidics for Rapid Screening of Cell-Free DNA Biomarkers", *Cancer Detection and Diagnostics Technologies for Global Health*, Rockville, Maryland, 2011

39. D. Kraitchman, C.W. Beh, C. Weiss, Y. Fu, H.Q. Mao, T.H. Wang, " Uniform X-ray-Visible Beads Created Using a Microfluidic Device to Reduce the Risk of Non-Target Embolization in Nonresectable Tumor Therapy", *Contrast Media Research Symposium (CMR)*, 2011

40. T.H. Wang, "A Droplet Microfluidics Based Miniaturized Total Analysis System for Point-of-Care Molecular Diagnostics" *SLAS Lab Automation Conference and Exhibition*, Palm Springs, CA, February, Palm Springs, California, 2011

41. H. C. Zec, C.M. Puleo, T.H. Wang," Droplet-based micro-evaporator for biomolecular detection". *BMES Annual Fall Scientific Meeting*, 2009

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45. V. Bailey, Y. Zhang, H. Easwaran, E. Griffiths, J.G. Herman, S.B. Baylin, H. Carraway, T.H. Wang, "High Throughput, Quantitative DNA Methylation Screening Using a Quantum Dot Based Nanotechnology Assay", *AACR Molecular Diagnostics in Cancer Therapeutic Development conference: Fulfilling the Promise of Personalized Medicine,* 2008

46. H.C. Yeh, Y.P. Ho, C.M. Puleo and T.H. Wang, "Using Tunable Cy5 Blinking Kinetics for Detection of Single-Nucleotide Differences", *Biophysical Society 52nd Annual Meeting and 16th International Biophysics Congress, 2008*

47. Y.P. Ho, H.H. Chen, K.W. Leong and T.H. Wang, "Single Particle QD-FRET: Evaluation of the Stability and Composition of Nanocomplexes for Gene Delivery", *Biophysical Society 52nd Annual Meeting and 16th International Biophysics Congress, 2008*

48. T.H. Wang, "Quantum Dot Sensors for Point Mutation Detection", *IX International Symposium on Mutation in The Genome*, 2007

49. K. Liu, C.M. Puleo and T.H. Wang, "High Mass Detection Efficiency Single Molecule", *Biomedical Engineering Society Annual Meeting,* 2007

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52. D.D. Nalayanda, L.M. Sharpe, T.H. Wang and F. Abdullah," Lung-Specific Functional Studies of Alveolar Cells in a Membrane-Based Microfludic Chip", *Biomedical Engineering Society Annual Meeting,* 2007

53. D.D. Nalayanda, C.M. Puleo, T.H. Wang and F. Abdullah," Micro-culture of Murine Fetal Pulmonary Cells in a Multi-chamber Varying Flow Microfluidic Chip", *Biomedical Engineering Society Annual Meeting,* 2007

54. C.M. Puleo, P. Trautman and T.H. Wang, "Overcoming the Limits of Single Molecule Detection in Solution with a Novel Cascading Microfluidic Evaporator", *Biomedical Engineering Society Annual Meeting,* 2007

55. C.M. Puleo, H.C Yeh, K. Liu and T.H. Wang, "Single Molecule Detection from Nanoliter Samples in Recirculating Microfluidic Devices", *Biomedical Engineering Society Annual Meeting,* 2007

56. H.H. Chen, Y.P. Ho, T.H. Wang and K. Leong, "Evaluating The Release And Integrity of DNA from Nanocomplexes for Gene Delivery by Two-Step QD-FRET", *Biomedical Engineering Society Annual Meeting,* 2007

57. H.H. Chen, Y.P. Ho, T.H. Wang, K.W. Leong, "Quantitative Analysis of Intracellular Unpacking of Polymeric DNA Nanoparticles Constructed from Quantum Dot-FRET", *10th Annual Meeting of the American Society of Gene Therapy,* 2007

58. H.C. Yeh, C.M. Puleo, T.C. Lim, P.B. Lillehoj, Y.P. Ho, K. Liu and T.H. Wang, "Evaluation of Doxorubicin as Inhibitor of Sp1-DNA Complex by Fluorescence Correlation Spectroscopy on a Microfluidic Chip", *Biomedical Engineering Society Annual Meeting,* 2006

59. K. Liu and T.H. Wang, "Electrokinetic and Hydrodynamic Focusing of DNA Fragments for Microfluidic Single Molecule Detection", *Biomedical Engineering Society Annual Meeting,* 2006

60. C.M. Puleo, H.C. Yeh, Y.P. Ho, P. Lillehoj, I.M. Shih and T.H. Wang, "Assessment of Allelic Imbalance Using Microfluidic Enabled Single Molecule PCR", *The Biomedical Engineering Society Annual Meeting,* 2006

61. H.H. Chen, Y.P. Ho, T.H. Wang, K.W. Leong, "Quantitative Model of Intracellular Trafficking Constructed from Quantum-dot-FRET", *Biomedical Engineering Society Annual Meeting,* 2006

62. Y.P. Ho, K. Murray, T.H. Wang, "An Electrokinetic-based Sample Processing Chip for Concentration and Lysis of Cells", *Biomedical Engineering Society Annual Meeting,* 2006

63. D.D. Nalayanda, J. Petsche, C.M. Puleo, B. Fulton, T.H. Wang and F. Abdullah, "Characterization of Endothelial and Alveolar Epithelial Cell Growth Parameters in Microchips", *Biomedical Engineering Society Annual Meeting,* 2006

64. H.C. Yeh, Y.P. Ho, C.M. Puleo, T.C. Lim and T.H. Wang, "Quantum Dot-FRET Nanosensors for Mutational Analysis of Cancers", *The Biomedical Engineering Society Annual Meeting,* 2006

65. H. H. Chen, Y.P. Ho, T.H. Wang, K.W. Leong, "Intracellular Trafficking of Quantum Dot-FRET Nanocomplexes for Gene Delivery", *The 9th Annul Meeting of the American Society of Gene Therapy,* 2006

66. T.H. Wang, "Point Mutation Detection with Quantum Dot Nanosensor", *1st International Conference on Bio-Nano-Information Fusion*, 2005

67. H.H. Chen, Y.P. Ho, T.H. Wang and K. W. Leong, " Intracellular Trafficking of QD-FRET Nanoparticles for Gene Delivery," *Biomedical Engineering Society Annual Meeting,* 2005

INVITED TALKS

1. Biomedical Engineering Departmental Seminar, Johns Hopkins University, Baltimore, Maryland, October 29, 2018
2. 2018 Biomedical Engineering Society Meeting (BMES 2018), Atlanta, Georgia, October 18, 2018
3. 4BioSubmit USA & 3rd Microfluidics Congress, San Francisco, California, September 14, 2018
4. INBT Faculty Research Forum, Johns Hopkins University, Baltimore, Maryland, June 20, 2018
5. 12th Annual Nano-Bio Symposium, Johns Hopkins University, Baltimore, Maryland, May 4 2018
6. 13th IEEE International Conference on Nano/Micro Engineered and Molecular Systems (IEEE NEMS 2018), Singapore, April 23, 2018
7. Molecular Med Tri-Con on Single Cell Analysis, San Francisco, California, February 15, 2018
8. The Mid-Atlantic DNA Nanotechnology Symposium (MAD Nano), Gaithersburg, Maryland, December 8, 2017
9. College of Veterinary Medicine, China Agricultural University, Beijing, China, November 23, 2017
10. 2017 Chinese Instrument and Control Society Meeting, Beijing, China, November 22, 2017
11. Department of Electrical Engineering, University of Houston, Houston TX, November 6, 2017
12. The 21st International Conference on Miniaturized Chemical and Biochemical Analysis Systems (micro-TAS 2017), Savannah, Georgia, October 23, 2017 (Keynote Talk)

13. 2017 AES Electrophoresis Society Meeting, Minneapolis, Minnesota, October 31, 2017 (Plenary Talk)
14. Department of Chemistry and Biochemistry, University of Maryland Baltimore County, Baltimore, Maryland, September 29, 2017
15. DuPont Pioneer Hi-Bred Seminar Series, Johnston, Iowa, July 13, 2017
16. 2017 MRS Spring Meeting & Exhibit, Nanoparticles and Bioapplications section, Phoenix, Arizona, 4/20/2107
17. Nanotech 2017 Conference & Expo, Cancer Nanotechnology section , Washington DC, May 15, 2017
18. Nanotech 2017 Conference & Expo , Micro & Bio Fluidics section Section, Washington DC, May 15, 2017
19. Departmental Seminar, Department of Mechanical Engineering, University of Texas, Austin, March 1, 2107
20. NCI Innovative Molecular Analysis Technologies (IMAT) Annual Meeting, Bethesda, Maryland, December 1, 2016
21. Early Detection Research Network (EDRN) Annual Meeting, Bethesda, Maryland, October 21, 2016
22. The 3rd Albert Institute Annual Symposium for Bladder Cancer Care and Research, Denver, Colorado, September 9, 2016
23. NCI Workshop on Circulating DNA Assays in Clinical Cancer Research, NIH/NCI, Rockville, Maryland, September 29, 2016
24. The 2nd Global Conference of Biomedical Engineering (GCBME), Taipei, Taiwan, August 18, 2016
25. Annual Symposium at National Health Research Institutes (NHRI), Zhunan, Taiwan, August 15, 2016
26. Stanford Bio-X Annual Symposium, Stanford University, Palo Alto, California, March 9, 2016
27. The 4th Nano Today Conference, Dubai, December 9, 2015
28. IMEC Nanotechnology for Health Workshop, IMEC Academy, Leuven, Belgium, September 22, 2015
29. School of Bioengineering, Taipei Medical University, Taipei, Taiwan, November 17, 2015
30. Institute of Biomedical Engineering and Nanomedicine, National Health Research Institutes (NHRI), Zhunan, Taiwan, August 11, 2015
31. Engineering and System Science Department, National Tsing-Hua University, Hsinchu, Taiwan, July 31, 2015
32. Research Center for Applied Sciences, Academia Sinica, Taipei, Taiwan, July 30, 2015
33. The 5th International Conference on Optofluidics (Optofluidics 2015), Taipei, Taiwan, July 28, 2015
34. The 7th WACBE World Congress on Bioengineering", Singapore, July 7, 2015
35. Microsystems Seminar Series, University of Maryland, College Park, March 25, 2015
36. Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy (Pittcon 2015), New Orleans, March 12, 2015

37. Department of Engineering Science and Mechanics, The Pennsylvania State University, State College, February 18, 2015
38. Institute of Systems Biology and Bioinformatics, National Central University, Jhongli, Taiwan, November 14, 2014
39. The Don P. Giddens Inaugural Professional Lecture Series, Johns Hopkins University, Baltimore, November 6, 2014
40. DuPont Pioneer Hi-Bred Seminar Series, Johnston, Iowa, September 9, 2014
41. International Conference on Optical MEMS and Nanophotonics (OMN 2014), Glasgow, Scotland, August 17, 2014 (Keynote talk)
42. The 1st Mid-Atlantic DNA Nanotechnology Symposium, Baltimore, August 8, 2014
43. The 9th IEEE International Conference on Nano/Micro Engineering and Molecular Systems, Waikiki Beach, Hawaii, April 13, 2014 (Keynote talk)
44. Nano@Wayne Seminar Series, Wayne State University, Detroit, April25, 2014
45. The 21st Annual Molecular Medicine Tri-Conference in Circular Cell-free DNA, San Francisco, February 14, 2014
46. ASME 3rd Global Congress on NanoEngineering for Medicine and Biology (NEMB2014) San Francisco, February 4, 2014
47. The 5th Annual Lab-On-A-Chip World Congress, San Diego, September 13, 2013 (Keynote talk)
48. BSi Brain Activity Map (BAM) Symposium, Johns Hopkins University, Baltimore, October 16, 2013
49. Seminar at DuPont Pioneer, Johnston, IA, August 22, 2013
50. Biomedical Technologies and Device Research Laboratories, Industrial Technology Research Institute (ITRI), Hsinchu, Taiwan, August 1, 2013
51. Department of Mechanical Engineering, National Taiwan University, Taipei, July 30, 2013
52. The MBSTP Microfluidics in Biomedical Sciences seminar series, University of Michigan, Ann Arbor, March 11, 2013
53. The KUST International Conference on Biomedical Engineering, HKUST, Hong Kong, January 11, 2013
54. Nanomedicine Lecture Series, Northeastern University, Boston, MA, November, 20, 2012
55. NCI Alliance for Nanotechnology in Cancer Meeting, Houston, TX, November 15, 2012
56. The 6th IEEE International Conference on Nano/Molecular Medicine and Engineering (IEEE-NANOMED 2011), Bangkok, November 4, 2012
57. Department of Mechanical and Electro-Mechanical Engineering, National Sun Yat-Sen University, Kaohsiung, Taiwan, June 21, 2012
58. The 4th International Symposium on Microchemistry and Microsystems (ISMM 2012), Hsinchu, Taiwan, June 12, 2012 (Keynote Talk)
59. Naon-Bio Symposium "Cancer The Big Picture", Johns Hopkins University, Baltimore, MD, May 4, 2012
60. NIH/NIBIB Nano-SIG Seminar Series, National Institutes of Health, Bethesda, MD, April 17, 2012

61. The 5th IEEE International Conference on Nano/Molecular Medicine and Engineering (IEEE-NANOMED 2011), Jeju, Korea, November 9, 2011 (Keynote Talk)
62. NCI Innovative Molecular Analysis Technologies Program, Annual Meeting, Bethesda, MD, November 14, 2011
63. Pioneer Hi-Bred Seminar Series, Johnston, Iowa, October 31, 2011
64. Mechanical Engineering Department, Johns Hopkins University, Baltimore, MD, October 20, 2011
65. The First Annual EITC Young Investigator Conference, Cambridge MA, August 18, 2011
66. SPIE Defense, Security and Sensing Conference, Orlando, FL, April 27, 2011
67. Monsanto Chemistry Seminar Series, St. Louis, MO, April 19, 2011
68. The 6th Annual IEEE International Conference on Nano/Micro Engineered and Molecular Systems (IEEE-NEMS), Kaohsiung, Taiwan, January 21, 2011
69. The 4th IEEE International Conference on Nano/Molecular Medicine and Engineering (IEEE-NANOMED 2010), Hong Kong, December 6, 2010
70. 2nd Johns Hopkins Ovarian Cancer Symposium: Early Carcinogenesis, Cancer Genomics & Biology, Baltimore, MD, September 30, 2010
71. 2010 Biomaterials Day Symposium, Baltimore, MD, October 29, 2010
72. Johns Hopkins BME Research Symposium, Baltimore, MD, August 9, 2010
73. 6th National RCE Meeting, Las Vegas, NV, April 12, 2010
74. Fischell Department of Bioengineering, University of Maryland, College Park, MD, April 23, 2010
75. Department of Biomedical Engineering, Johns Hopkins University, Baltimore, December 2009
76. Public Health Genomics Seminar Series, Johns Hopkins Bloomberg School of Public Health, Baltimore, November 2009
77. The 31st Annual International IEEE EMBS Conference, Minneapolis, Minnesota, September 2009
78. Advanced Institute for Materials Research (WPI*AIMR), Sendai, Japan, August 2009
79. The IUTAM Summer School on Mechanics and Microfluidics, Peking University (PKU), Beijing, August 2009
80. The 9th Emerging Information and Technology Conference (EITC 2009), Massachusetts Institute of Technology, Cambridge, MA, August 2009
81. Department of Engineering Science, National Cheng Kung University, Tainan, Taiwan, June 2009
82. Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan, June 2009
83. Naturally Nano Symposium, the 237th ACS National Meeting, Salt Lake City, UT, March 2009
84. Cell Biophysics Symposium, School of Medicine, Johns Hopkins University, Baltimore, Maryland, November 2008
85. Symposium Toward a Strategic Vision for Basic Sciences for Chemical and Biological Defense, Atlanta, Georgia, August 2008
86. Pathology Grand Rounds, School of Medicine, Johns Hopkins University, Baltimore, Maryland, September 2008

87. NanoBio Symposium 2008, Institute for NanoBiotechnology & The Sidney Kimmel Comprehensive Cancer Center, Johns Hopkins School of Medicine, Baltimore, Maryland, May 2008

88. Department of Aerospace and Mechanical Engineering, University of Arizona, Tucson, Arizona, April 2008

89. The 3rd Annual IEEE International Conference on Nano/Micro Engineered and Molecular Systems (IEEE-NEMS), Sanya, Hainan, China, January 2008

90. Department of Mechanical Engineering and Mechanics, Drexel University, Philadelphia, Pennsylvania, November 2007

91. The Symposium: Nano Meets Micro, Center of Advanced Learning in Information Technologies (CALIT), IMEC, Leuven, Belgium, September 2007

92. HUGO IX International Symposium on Mutation in The Genome (2007 Mutation Detection), Xiamen, China, September 2007

93. Department of Oncology, Johns Hopkins Medical Institutes, Baltimore, Maryland, September 2007

94. Bureau of Forensic Services, Department of Justice, Sate of California, Richmond, California, June 2007

95. Fifth International Conference on Nanochannels, Microchannels and Minichannels (ASME ICNMM 2007), Puebla, Mexico June 2007 (Keynote Talk)

96. Department of Electrical and Computer Engineering, University of Maryland, College Park, Maryland, March 2007

97. Department of Mechanical Science and Engineering, University of Illinois, Champaign Urbana Illinois, March 2007

98. Department of Pathology, Johns Hopkins Medical Institutes, Baltimore, Maryland, November 2006

99. The Symposium: Mining the Biology-Physics Interface, Biology Department, Johns Hopkins University, Baltimore, Maryland, January 2006

100. Department of Biomedical Engineering & Beckman Laser Institute, University of California, Irvine, January 2006

101. The 1st International Conference on Bio-Nano-Information Fusion, Marina del Ray, California, July 2005

102. The 6th Annual NSF CAMD/CBM^2 Summer Workshop, Barton Rouge, Louisiana, July 2005

103. Department of Mechanics and Engineering Science, Peking University, Beijing, China, May 2004

104. Mechanical Engineering Department, Shanghai Jaio Tong University. Shanghai, China, May 2004

105. The 5th Annual BioMEMS and Nanotech Conference, Washington DC, August 2004

106. Biomedical Engineering Department, University of Southern California, Los Angeles, California, September 2003.

107. NASA Center for Cell Mimetic Space Exploration (CMISE), Los Angeles, California, September 2003.

108. Knowledge Foundation BioMEMS Conference. San Jose, California, June 2003.

109. NSF Engineering Research Center for Computer-Integrated Surgical Systems and Technology at Johns Hopkins University, Baltimore, Maryland, April 2003.

110. Department of Mechanical Engineering at Johns Hopkins University, Baltimore, Maryland, October 2003.

111. Institute of Applied Mechanics, National Taiwan University, Taipei, Taiwan, December 2003

112. Power Mechanical Engineering Department, National Tsing Hua University, Hsinchu, Taiwan, December 2003

113. Aerospace and Mechanical Engineering Department, University of Notre Dame, Indiana, February 2002

114. Mechanical Engineering Department, Massachusetts Institute of Technology, Boston, Massachusetts March 2002

115. Industrial and manufacturing Engineering Department, Pennsylvanian State University, University Park, Pennsylvania, April 2002

116. Mechanical and Aerospace Engineering Department, Cornell University, Ithaca, New York, April 2002

117. Mechanical Engineering Department, Johns Hopkins University, Baltimore, Maryland, May 2002

118. Mechanical Engineering Department, University of California, Riverside, June 2002

CONFERENCE AND WORKSHOP PRESENTATIONS

1. The 21st International Conference on Miniaturized Chemical and Biochemical Analysis Systems (micro-TAS 2017), Savannah, Georgia, October 22-26, 2017 (Oral presentation by postdoc L. Chen)
2. The 21st International Conference on Miniaturized Chemical and Biochemical Analysis Systems (micro-TAS 2017), Savannah, Georgia, October 22-26, 2017 (Oral presentation by student A. Kaushik)
3. The 21st International Conference on Miniaturized Chemical and Biochemical Analysis Systems (micro-TAS 2017), Savannah, Georgia, October 22-26, 2017 (Poster presentation by student P. Zhang)
4. The 21st International Conference on Miniaturized Chemical and Biochemical Analysis Systems (micro-TAS 2017), Savannah, Georgia, October 22-26, 2017 (Poster presentation by student C. O'Keefe)
5. The 19th International Conference on Solid-State Sensors and Microsystems (Transducers 2017), Kaohsiung, Taiwan, , June 18-22, 2017 (Oral presentations by student A. Trick)
6. 2017 BMES Annual Meeting, Biomedical Engineering Society, Phoenix, Arizona, October 11-14, 2017 (Oral presentation by student C. O'Keefe)
7. 2017 ASM Microbe, American Society for Microbiology, New Orleans, Louisiana, June 1-5, 2017 (Poster presentation by postdoc W. Hsieh)
8. The 12th IEEE Interanational Conference on Nano/Micro Engineered and Molecular Systems (IEEE NEMS), Los Angeles, California, April 9-12, 2107 (Oral presentations by student A. Kaushik)
9. The 12th IEEE Interanational Conference on Nano/Micro Engineered and Molecular Systems (IEEE NEMS), Los Angeles, California, April 9-12, 2107 (Oral presentations by student Y. Zhang)
10. The 12th IEEE Interanational Conference on Nano/Micro Engineered and Molecular Systems (IEEE NEMS), Los Angeles, California, April 9-12, 2107 (Oral presentations by student P. Athamanolap)

11. APS March Meeting 2017, American Physical Society, New Orleans, Louisiana, March 13-17, 2017 (Oral presentations by student S. Friedrich)
12. 2016 Biomedical Engineering Society Meeting (BMES), Minneapolis, Minnesota, October 5-8 , 2016 (Oral presentation by student P. Athamanolap)
13. 2016 Biomedical Engineering Society Meeting (BMES), Minneapolis, Minnesota, October 5-8 , 2016 (Oral presentation by student C. O'Keefe)
14. The 20th International Conference on Miniaturized Chemical and Biochemical Analysis Systems (micro-TAS 2016), Dublin, Ireland, October 9-13, 2016 (Oral presentation by postdoc W. Hsieh)
15. The 20th International Conference on Miniaturized Chemical and Biochemical Analysis Systems (micro-TAS 2016), Dublin, Ireland, October 9-13, 2016 (Poster presentation by Wang)
16. The 20th International Conference on Miniaturized Chemical and Biochemical Analysis Systems (micro-TAS 2016), Dublin, Ireland, October 9-13, 2016 (Poster presentation by postdoc W. Hsieh)
17. Personalized Medicine Gordon Research Conference, July 10-15, 2016
18. 40th ISCC and 13th GCxGC Symposium, May 29-Jun 4, 2016 (Oral presentation by C.F. Ivory)
19. 2016 NanoEngineering for Medicine and Biology Conference (NEMB), February 21-24, 2016 (Oral presentation by student S. Friedrich)
20. 2016 NanoEngineering for Medicine and Biology Conference (NEMB), February 21-24, 2016 (Oral presentation by student Y. Zhang)
21. 2016 NanoEngineering for Medicine and Biology Conference (NEMB), February 21-244, 2016 (Oral presentation by student D.J. Shin)
22. The 29th IEEE International Conference on Micro Electro Mechanical Systems (IEEE MEMS2016), Taipei, Taiwan, January 27, 2016 (Oral presentation by student S. Friedrich)
23. The19th International Conference on Miniaturized Chemical and Biochemical Analysis Systems (micro-TAS 2015), Gyeongju, Korea, October 25-29, 2015 (Poster presentation by postdoc W. Hsieh)
24. 2015 World STI & HIV Congress, Brisbane, Australia, September 14, 2015 (Oral presentation by student D.J. Shin)
25. 2015 Annual Meeting - American Association for Clinical Chemistry (AACC), Atlanta, GA, July 2015 (Oral presentation by student D.J. Shin)
26. The 18th International Conference on Solid-State Sensors and Microsystems (Transducers 2015), Anchorage, Alaska, June 2015 (Oral presentations by student Aniruddha Kaushik)
27. The 18th International Conference on Solid-State Sensors and Microsystems (Transducers 2015), Anchorage, Alaska, June 2015 (Oral presentation by student Chrissy O'Keefe)
28. 2014 Biomedical Engineering Society Meeting (BMES 2014), October, San Antonio, 2014 (Oral presentation by student Y. Zhang)
29. Spring 2014 Symposium: From Lab to Life: Field Based Applications of MEMS and NEMS, Baltimore, 2014 (Oral presentation by student P. Athamanolap)
30. Spring 2014 Symposium: From Lab to Life: Field Based Applications of MEMS and NEMS, Baltimore, 2014 (Poster presentation by student Y. Zhang)
31. ASME 3rd Global Congress on NanoEngineering for Medicine and Biology (NEMB2014), San Francisco, February 4, 2014 (Oral presentation by student D.J. Shin)

32. The 24th Anniversary World Congress on Biosensors (Biosensors 2014), Melbourne, Australia, May 29, 2014
33. NCI-NIBIB Point of Care Technologies for Cancer Conference, Bethesda, January 8, 2014
34. The 17th International Conference on Miniaturized Chemical and Biochemical Analysis Systems (micro-TAS 2013), Freiburg, Germany, October 28, 2013 (Oral presentation by student S.M. Friedrich)
35. The17th International Conference on Miniaturized Chemical and Biochemical Analysis Systems (micro-TAS 2013), Freiburg, Germany, October 28, 2013 (Oral presentation by student D.J. Shin)
36. The 8th Annual IEEE International Conference on Nano/Micro Engineering and Molecular Systems (IEEE-NEMS), Suzhou, China, April 9 , 2013 (Oral presentation by student Y. Zhang)
37. The 26th IEEE International Conference on Micro Electro Mechanical Systems (IEEE MEMS2013), Taipei, Taiwan, January 20-24, 2013 (Two talks presented by students Chi-Han Chiou and Helena Zec)
38. EMBS Micro and Nanotechnology in Medicine Conference, Hawaii, December 6, 2012 (Presented by student C. Beh)
39. The 6th IEEE International Conference on Nano/Molecular Medicine and Engineering (IEEE NANOMED 2012), November 7, 2012 (Presented by student Y. Zhang)
40. The 16th International Conference on Miniaturized Chemical and Biochemical Analysis Systems (micro-TAS 2012), October 29, 2012 (Presented by student Y Zhang)
41. IEEE 12th International Conference on Nanotechnology (IEEE NANO 2012), August 2012 (Two talks presented by Wang and graduate student B. Keeley)
42. ASME 10th International Conference on Nanochannels, Microchannels and Minichannels (ICNMM 2012), July 10, 2012 (Two talks presented by postdoc K Liu and graduate student T Rane)
43. ACS Colloids and Surfaces 2012 Symposium, Baltimore, MD, June 2012 (Two talks presented by graduate student Y. Zhang)
44. The Pittsburgh Conference on Analytical Chemistry & Applied Spectroscopy (Pittcon 2012), Orlando, FL, March 14-15, 2012 (Three talks presented by postdoc K, Liu and graduate students Y Zhang and T. Rane)
45. The Lab Automation Conference and Exhibition (Lab Automation 2011), Palm Springs, CA, February 1, 2011
46. MF3 Industrial Advisory Board (IAB) Meeting / DARPA NEMS/MEMS S&T Fundamentals PI Meeting, Arlington, VA, December 8, 2011
47. NCI Alliance for Nanotechnology in Cancer Annual Meeting, Boston, MA, September 20, 2011
48. The 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC '11), Boston, MA, September 3, 2011 (Presented by postdoc K. Liu)
49. Cancer Detection and Diagnostics Technologies for Global Health, Rockville, Maryland, August 22-23, 2011
50. The 16th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers 2011), Beijing, China, June 6, 2011(Two talks presented by student Y. Zhang)

51. The 6th Annual IEEE International Conference on Nano/Micro Engineering and Molecular Systems (IEEE-NEMS), Kaohsiung, Taiwan, February 22, 2011 (Presented by student Y. Zhang)
52. SLAS Lab Automation Conference and Exhibition (Lab Automation 2011), Palm Springs, CA, February 1, 2011
53. MF3 Industrial Advisory Board (IAB) Meeting / DARPA NEMS/MEMS S&T Fundamentals PI Meeting, Arlington, VA, December 14, 2010
54. NIH/NIAID Middle Atlantic Regional Center of Excellence (MARCE) PI meeting, November 15, 2010
55. 14th International Conference on Miniaturized Chemical and Biochemical Analysis Systems (micro-TAS 2010*)*, Groningen, Netherlands, October 3, 2010 (Presented by student C. Beh & Y. Zhang)
56. 23rd IEEE International Conference on Micro Electro Mechanical Systems (IEEE MEMS2010), Hong Kong, January 24, 2010 (Presented by student Y. Zhang)
57. 2010 Gordon Conference on Bioanalytical Sensors, New London, NH, June 22, 2010
58. NIH/NIAID Middle Atlantic Regional Center of Excellence (MARCE) PI meeting, June 2, 2010
59. The 13th International Conference on Miniaturized Systems for Chemistry and Life Sciences (microTAS), Jeju, Korea, November, 2009 (Presented by student H. Zec)
60. NIH/NIAID Middle Atlantic Regional Center of Excellence (MARCE) PI meeting, Nov 2009
61. NIH/NCI Translational Science Meeting, Leesburg Pike, Vienna, Virginia, November 2009
62. NIH/NCI Innovative Molecular Analysis Technologies (IMAT) Program meeting, Bethesda Maryland, October 2009
63. Biomedical Engineering Society Annual Meeting (BMES), Pittsburgh, Pennsylvania, October 2009 (Presented by student H. Zec)
64. The 15th International Conference on Solid State Sensors, Actuators and Microsystems (Transducers), Denver, Colorado, June 2009 (Presented by student Y. Zhang)
65. MF3 Industrial Advisory Board (IAB) Meeting / DARPA NEMS/MEMS S&T Fundamentals PI Meeting, Sunriver, Oregon, July 2009
66. MF3 Industrial Advisory Board (IAB) Meeting / DARPA NEMS/MEMS S&T Fundamentals PI Meeting, Napa Valley, California, January 2009
67. AACR Molecular Diagnostics in Cancer Therapeutic Development conference: Fulfilling the Promise of Personalized Medicine, Philadelphia, Pennsylvania, 2008 (Presented by student V. Bailey)
68. Biomedical Engineering Society Annual Meeting, St. Louis, Missouri, October 2008 (Presented by student C.M. Puleo)
69. MF3 Industrial Advisory Board (IAB) Meeting, Irvine, California, August 2008 (Presented by student T. Rane and C. M. Puleo)
70. NIH NCI Innovative Molecular Analysis Technologies (IMAT) Program PI meeting, Boston. Massachusetts, October 2008
71. NSF/DHS S&T Explosives and Related Threats: Frontiers in Prediction and Detection (EXP) Grantees Conference, Arlington, Virginia, January 2008

72. The 21st IEEE International Conference on Micro Electro Mechanical Systems, Tucson, Arizona, USA, January 2008 (Presented by student C.M. Puleo)

73. The 21st IEEE International Conference on Micro Electro Mechanical Systems, Tucson, Arizona, USA, January 2008 (Presented by student Y.P. Ho)

74. MF3 Industrial Advisory Board (IAB) Meeting / DARPA NEMS/MEMS S&T Fundamentals PI Meeting, Miami, Florida January 2008 (Presented by student H.C. Yeh and C. M. Puleo)

75. IMEC-JHU INBT Workshop, Leuven, Belgium, October 2007

76. Biomedical Engineering Society Annual Meeting, Los Angeles, California, September 2007 (Presented by student C.M. Puleo)

77. MF3 Industrial Advisory Board (IAB) Meeting / DARPA NEMS/MEMS S&T Fundamentals PI Meeting, San Francisco, California, June 2007

78. The 10th Annual Meeting of the American Society of Gene Therapy, Seattle, Washington, May 2007 (Presented by student H.H. Chen) (Travel Award and Excellence in Research Award)

79. MF3 Industrial Advisory Board (IAB) Meeting / DARPA NEMS/MEMS S&T Fundamentals PI Meeting, Minneapolis, Minnesota, October 2006

80. Biomedical Engineering Society Annual Meeting, Chicago, Illinois, October 2006 (Three talks presented by student C.M. Puleo, H.H. Chen, and H.C. Yeh)

81. The 9th Annul Meeting of the American Society of Gene Therapy, Baltimore, Maryland, June 2006 (Presented by student H.H. Chen)

82. IEEE/NLM Life Science Systems and Application Workshop, Bethesda, Maryland, July 2006 (Presented by student Y.P. Ho)

83. IEEE/NLM Life Science Systems and Application Workshop, Bethesda, Maryland, July 2006 (Presented by student K. Murray)

84. NSTI- Bio-Nanotechnology Conference, Anaheim, California, May 2005 (Presented by student H.C. Yeh)

85. World Congress for Chinese Biomedical Engineers, Taipei Taiwan, December 2002 (Travel Award)

86. The 17th IEEE International Conference on Micro Electro Mechanical Systems, Maastricht, The Netherlands, January 2004 (Presented by student H.C. Yeh)

87. The 15th IEEE International Conference on Micro Electro Mechanical Systems, Las Vegas, Nevada, January 2002

88. Second UC System –Wide Bioengineering Symposium, U of California, Santa Barbara, May 2001

89. MAE Research and Technology Review, University of California, Los Angeles, May 2001

90. International Conference on Mathematics and Engineering techniques in Medicine and Biological Science, Las Vegas, Nevada , June 2000

91. The 21st IEEE/CPMT International Electronics manufacturing Technology Symposium, Austin, Texas, October 1997

GRANTS

Current Funding

Supporting Agency: NIH

Award: $5,116,774
Duration: 8/18-7/22
Title: Technology development for point-of-care detection and antimicrobial susceptibility testing of Neisseria gonorrhoeae
Principle Investigators: PI: T.H. Wang

Supporting Agency: NIH
Award: $3,789,941
Duration: 1/18-12/22
Title: A "Culture" Shift: Integrated Bacterial Screening and Antibacterial Susceptibility Test on Microfluidic Digital Array for Bloodstream Infections
Principle Investigators: PI: T.H. Wang

Supporting Agency: NIH
Award: $5,885,384
Duration: 4/15-3/20
Title: A Droplet-based single cell platform for pathogen identification and AST
Principle Investigators: PI: T.H. Wang

Supporting Agency: DoD /MCDC
Award: $5,997,583
Duration: 12/18-12/21
Title: Integrated and Rapid Bacterial Identification and Antimicrobial Susceptibility Analysis using Digital High-Resolution Melt Analysis at the Point of Need
Principle Investigators: PIs: C. Puleo & T.H. Wang

Supporting Agency: NIH
Award: $9,500,000
Duration: 7/18-6/23
Title: Center for Point-of-Care Technologies Research for Sexually Transmitted Diseases
Principle Investigators: PIs: C. Gaydos & Y. Manabe

Supporting Agency: NIH
Award: $3,550,000
Duration: 8/18-7/23
Title: Academic-Industrial Partnership for Non-invasive Barrett’s Esophagus Detection
Principle Investigators: PI: S. Meltzer

Supporting Agency: NIH
Award: $654,999
Duration: 8/17-7/20
Title: High-efficiency microfluidic-assisted single-cell DNA methylome sequencing
Principle Investigators: PI: H. Easwaran

Supporting Agency: NIH
Award: $861,132
Duration: 5/17-4/19
Title: Facile screening for esophageal cancer in LMICs
Principle Investigators: PI: S. Meltzer; Co-PI: T.H. Wang

Supporting Agency: NIH
Award: $1,497,309
Duration: 5/17-4/19
Title: High Quality, High Integrity Nucleic Acid Extraction from FFPE Tissues
Principle Investigators: PI: K. Liu; Co-PI: T.H. Wang

Supporting Agency: NIH
Award: $2,870,115
Duration: 9/16-8/21
Title: Ultrasensitive Detection of Tumor Specific DNA Methylation Changes for the Early Detection of Lung Cancer
Principle Investigators: PI: J.G. Herman; Co-PI: T.H. Wang

Supporting Agency: Burroughs Wellcome Fund
Award: $6,000
Duration: 7/17-12/18
Title: Translating Single-Cell Diagnostics for Urinary Tract Infections into Healthcare Settings
Principle Investigators: PI: W. Hsieh (postdoc); co-PI: T.H. Wang

Supporting Agency: Hartwell Foundation
Award: $100,000
Duration: 7/17-9/19
Title: Development of Rapid Diagnostic for Complete Bacteria Characterization for Sepsis
Principle Investigators: PI: W. Hsieh (postdoc); co-PI: T.H. Wang

Supporting Agency: Tina's Wish
Award: $400,000
Proposed Duration: 1/19-1/21
Title: PapDREAMing for the detection of premalignant ovarian cancer
Principle Investigator: PI: I.M. Shih; Co-PI: T.H. Wang

Supporting Agency: Tina's Wish
Award: $200,000
Proposed Duration: 12/16-12/18
Title: Applying DREAMing to detect epigenetic markers in ovarian cancer
Principle Investigator: PI: I.M. Shih; Co-PI: T.H. Wang

Supporting Agency: Allegheny Health Network-Johns Hopkins Cancer Research Fund
Award: $200,000
Proposed Duration: 4/16-3/19
Title: Rapid, low-cost assessment of intra-tumor heterogeneity for predicting and monitoring chemotherapeutic response
Principle Investigator: T.H. Wang

Supporting Agency: NIH
Award: $2,977,015
Proposed Duration: 4/15-3/20
Title: Shape Control and Transport Properties of DNA-Copolymer Micelles
Principle Investigator: PI: H. Mao (contact); Co-PI: T.H. Wang, Pomper, J. green, E. Lhihten

Supporting Agency: NSF
Award: $800,000
Proposed Duration: 10/15-9/19
Title: PFI:AIR-RA: Commercializing a Single Cell Array-Molecular Analysis Platform for Plant Genomics in an Industry/University Ecosystem
Principle Investigators: PI: A.P. Lee; Co-PI: T.H. Wang

Supporting Agency: NSF
Award: $230,807
Proposed Duration: 6/15-5/19
Title: IRES: U.S. - Belgium Bioengineering Collaboration with International Research Experience for Students
Principle Investigator: PI: P. Searson; Co-PIs J. Green, S, Gerecht, D. Gracias and J. T.H. Wang

Supporting Agency: Pioneer Hi-Bred International, Inc.
Award: $907,742
Duration: 1/14-1/19
Title: A Droplet Microfluidic Platform For Sequencing Library Preparation
Principle Investigator: T.H. Wang

Supporting Agency: NIH
Proposed Budget: $1,497,779
Proposed Duration: 05/15-04/19
Title: Ligo-miR - A Multiplexed Single Molecule Ligation Assay for miRNA Profiling
Principle Investigators: PI: K. Liu (contact); co-PI: T.H. Wang

Supporting Agency: NIH
Proposed Budget: $1,497,552
Proposed Duration: 09/15-08/19
Title: Nanobind Hierarchical Silica Lamella for High Molecular Weight DNA Extraction
Principle Investigators: PI: K. Liu (contact); co-PI: T.H. Wang

Supporting Agency: NIH
Proposed Budget: $1,49,6341
Proposed Duration: 09/16-08/19
Title: High Quality, High Integrity Nucleic Acid Extraction from FFPE Tissues
Principle Investigators: PI: K. Liu (contact); co-PI: T.H. Wang

Supporting Agency: NIH
Proposed Budget: $1,491,501
Proposed Duration: 12/16-01/19
Title: Picosep - A Microfluidic Platform for Single Molecule DNA and RNA Sizing
Principle Investigators: PI: K. Liu (contact); co-PI: T.H. Wang

Supporting Agency: JHU Discover Award
Proposed Budget: $100,000
Proposed Duration: 08/18-07/19
Title: Digital Methylation Assessment for Early Noninvasive Detection of Ovarian Cancer
Principle Investigators: PI: T.L. Wang; co-PI: T. Pisanic, I.M. Shih,, T.H. Wang

Supporting Agency: NIH
Proposed Budget: $50,000
Proposed Duration: 9/18-8/19
Title: POCTR Tactical Funding Sub award: MobiNAAT: Self-contained droplet magnetic assay cartridge for point-of-care diagnostics
Principle Investigators: PI: T.H. Wang

Previous

Supporting Agency: Pioneer Hi-Bred International, Inc.
Award: $532,057
Duration: 11/15-10/18
Title: A high-throughput, continues flow microfluidic droplet platform for plant genotyping analysis
Principle Investigator: T.H. Wang

Supporting Agency: NIH
Award: $802,500
Proposed Duration: 9/14-8/18
Title: Digital Detection of Tumor-Derived Circulating Methylated DNA
Principle Investigator: PI: T.H. Wang; Co-PI: J.G. Herman

Supporting Agency: NIH
Award: $8,796,564
Proposed Duration: 7/12-6/18
Title: Center for Point-of-Care Technologies for Sexually Transmitted Diseases
Principle Investigator: Charlotte Gaydos

Supporting Agency: Stand Up To Cancer (SU2C), AACR and Dutch Cancer Society
Award: $386,105
Proposed Duration: 9/14-8/17
Title: "SU2C Dream Team - Molecular Early Detection of Colorectal Cancer (MEDOCC)"
Principle Investigator: PIs: G. Meijer and V. Velculescu

Supporting Agency: NIH
Award: $1,688,000
Duration: 7/11-6/16
Title: Multiplexed Detection of Cell Free DNA Biomarkers for Cancer
Principle Investigators: PI: T.H. Wang; Co-Is: J.G. Herman and I.M. Shih

Supporting Agency: Cohen Translational Engineering Fund
Award: $19,120
Proposed Duration: 7/16-6/17
Title: Self-contained droplet magnetic assay cartridge for point-of-care diagnostics
Principle Investigator: PI: T.H. Wang

Supporting Agency: Johns Hopkins SoM Synergy Award
Award: $100,000
Proposed Duration: 7/16-6/17

Title: Minimally Invasive Screening Technology for Esophageal Cancer
Principle Investigator: PI: S. Meltzer; Co-PI: T.H. Wang

Supporting Agency: NIH
Award: $13,600,000
Proposed Duration: 9/10-8/16
Title: JHU Center of Cancer Nanotechnology Excellence (CCNE)
Principle Investigators: Center PIs: P. Searson & M. Pomper; Project PIs: T.H. Wang, A. Maitra, H. Levitsky, J .Hanes

Supporting Agency: NIH
Award: $699,000
Proposed Duration: 10/12-9/16
Title: PCR-free Multiplexed Detection of Circulating miRNA in Blood
Principle Investigator: PI: T.H. Wang; Co-PI: S. Meltzer

Supporting Agency: NIH
Award: $224,338
Proposed Duration: 09/14-08/15
Title: Nanobind FFPE DNA/RNA Extraction
Principle Investigator: PIs: K. Liu (contact) & T.H. Wang

Supporting Agency: NIH
Award: $175,054
Proposed Duration: 07/14-10/15
Title: High Integrity and High Yield DNA Extraction Using a Nanostructured Surface
Principle Investigator: PIs: K. Liu (contact) & T.H. Wang

Supporting Agency: NSF
Award: $397,884
Proposed Duration: 97/12-7/16
Title: Microfluidic Single-Cell Melting Curve Analysis for Broad-Scale Detection of Microbial Organisms
Principle Investigator: T.H. Wang

Supporting Agency: Johns Hopkins University
Award: $100,000
Proposed Duration: 8/15-7/16
Title: Lung Cancer Early Diagnosis Using Biomarkers from Multiple Platforms
Principle Investigator: P. Huang

Supporting Agency: Maryland Stem Cell Research Fund
Award: $689,000
Proposed Duration: 7/11-6/14
Title: Single Cell Microencapsulation For Ischemic Heart Disease Therapy
Principle Investigator: D. Kraitchman

Supporting Agency: Thrasher Research Fund
Award: $300,000
Proposed Duration: 4/12-3/15

Title:	Developing a point-of-care diagnostics for acute bacterial meningitis in infants and children
Principle Investigator:	S. Yang

Supporting Agency:	NIH
Proposed Budget:	$399,049
Proposed Duration:	07/12-06/14
Title:	Ligo-miR - A Multiplexed Single Molecule Ligation Assay for miRNA Profiling (Phase I)
Principle Investigators:	K. Liu & T.H. Wang

Supporting Agency:	NIH
Proposed Budget:	$399,064
Proposed Duration:	04/12-03/14
Title:	PicoSep - A Microfluidic Single Molecule Free Solution Hydrodynamic Separation
Principle Investigators:	K. Liu & T.H. Wang

Supporting Agency:	NIH
Award:	$100,000
Proposed Duration:	1/14-12/14
Title:	Highly Sensitive, Multiplex MicroRNA Analysis Using Single Molecule Coding and Detection -Towards microRNA profiling of Single Cells (CCNE Pilot Project)
Principle Investigators:	T.H. Wang & S. Meltzer

Supporting Agency:	NSF
Award:	$340,000
Proposed Duration:	9/10-8/14
Title:	Integrated Single Molecule Color Coding System for Multiplexed Detection of Pathogens
Principle Investigator:	PI: T.H. Wang

Supporting Agency:	NIH
Award:	$1,650,000
Proposed Duration:	8/10-6/15
Title:	Integrated Development of Novel Molecular Markers
Principle Investigator:	PI: D. Sidransky; Project Leader: J.G. Herman (Project 2)

Supporting Agency:	Stand Up To Cancer (SU2C) & American Association for Cancer Research
Award:	$9,120,000
Proposed Duration:	1/10-12/12
Title:	Bringing Epigenetic Therapy to the Forefront of Cancer management (SU2C Dream Team)
Principle Investigators:	PIs: S.B. Baylin & P. Jones; Senior Investigators: T.H. Wang and 8 others

Supporting Agency:	DARPA / MTO & Industrial Sponsors
Award:	$12,500,000
Duration:	1/07-12/12
Title:	Micro/Nano Fluidics Fundamentals Focus (MF3) Center
Principle Investigator:	Center PI: A.P. Lee

Supporting Agency: NSF
Award: $400,000
Duration: 6/06-5/12
Title: CAREER: A Bioanalytical System for Gene Expression Analysis on a Single Cell Basis
Principle Investigator: T.H. Wang (sole PI)

Supporting Agency: NIH
Proposed Budget: $374,400
Proposed Duration: 2/08-1/11
Title: Nanobiosensing Method for Point Mutation Detection of Cancer
Principle Investigator: PI: T.H. Wang; Co-PI: I.M. Shih

Supporting Agency: NIH
Award: $222,729
Duration: 12/08-11/10
Title: Single-tube nano-assay for analysis of DNA Methylation, P50 Lung SPORE (Specialized Programs of Research Excellence)-Pilot Project
Principle Investigators: T.H. Wang (sole PI)

Supporting Agency: NIH/NIAID
Proposed Budget: $399,613
Proposed Duration: 4/09-3/11
Title: Advanced Electrokinetic-Based Micro total Analysis System for Biothreat Detection
Principle Investigators: PI: T.H. Wang; Co-PIs: S. Yang, R. Rothman

Supporting Agency: NSF
Award: $395,000
Duration: 1/08-12/11
Title: EXP-SA: Collaborative Research: Ultratrace Detection of Explosives Enabled by an Integrated Microfluidic Nanosensing System
Principle Investigators: T.H. Wang & S.K. Cho

Supporting Agency: NSF
Award: $334,000
Duration: 11/07-10/11
Title: Collaborative Research: Integrated Microsystem for Ultrasensitive Airborne Pathogen Detection in Real Time
Principle Investigators: T.H. Wang & S.K. Cho

Supporting Agency: NIH
Award: $1,398,195
Proposed Duration: 2/08-1/12
Title: Biodegradable Micelles for Liver-Targeted Gene Delivery
Principle Investigator: H.Q. Mao

Supporting Agency: NIH
Award: $1,450,000
Duration: 9/03-8/09
Title: Mechanistic Studies on Polymeric Controlled Oral Gene Delivery

Principle Investigator: K. Leong

Supporting Agency: NSF
Proposed Budget: $50,000
Proposed Duration: 3/08-2/09
Title: SGER: Flow field quantification in microfluidic mixing systems by single-molecule detection methods
Principle Investigator: PI: L.K. Su

Supporting Agency: National Collegiate Inventors & Innovative Alliance (NCIIA)
Award: $20,000
Duration: 4/09-12/10
Title: Development of a Total Cancer Marker through Single Molecule Assemessment of DNA Integrity (smDNA)
Principle Investigators: T. H. Wang

Supporting Agency: NIH
Award: $155,120
Duration: 1/07-11/08
Title: Novel Quantum Dot Based Nanosensor to Detect DNA Methylation (MS-QD FRET), P50 Lung SPORE (Specialized Programs of Research Excellence)-Pilot Project
Principle Investigators: T.H. Wang

Supporting Agency: NSF
Award: $300,000
Duration: 7/06-6/08
Title: IDBR: Development of a Universal Spectroscopic Nanosensing System for Multiplexed Genomic and Proteomic Analysis
Principle Investigator: T.H. Wang

Supporting Agency: Institute for BioNanoTechnology
Award: $20,000
Duration: 11/07-9/08
Title: An Integrated Microfluidic Nanosensor Platform for Point Mutation Detection of Cancers
Principle Investigator: PI: T.H. Wang ; Co-PI: I.M. Shih

Supporting Agency: Applied Physics Laboratory / JHU-APL Partnership Fund
Award: $110,000
Duration: 1/06-12/06
Title: Advanced Microfluidics-based Sample Processing for Bio-Agent Detection
Principle Investigators: T.H. Wang & J. Miragliotta

Supporting Agency: Johns Hopkins Medical Institute / Fund for Medical Discovery Application
Award: $50,000
Duration: 3/06-2/07
Title: Program for Early Detection and Prevention of Ovarian Cancer/Genetic markers
Principle Investigators: PI: I.M. Shih; Co-Is: T.H. Wang, T.L. Wang, B. Vogelstein,

Supporting Agency: NSF

Funding (Total Cost):	$280,400
Duration:	6/04-5/06
Title:	Quantification of Biomolecules Based on Flow Cytometric Single-Molecule Detection on Microchip
Principle Investigator:	T.H. Wang
Supporting Agency:	Johns Hopkins University
Funding (Total Cost):	$3,000
Duration:	6/04-8/04
Title:	Molecular Beacon Using QD as a FRET Donor
Principle Investigator:	T.H. Wang - Provost's Undergraduate Research Award (PURA) to Dr. Wang's undergraduate student Marcos Kuroki
Supporting Agency:	Johns Hopkins University
Funding (Total Cost):	$3,000
Duration:	6/03-8/03
Title:	Fabrication of Micro DNA Biosensor Chip with Embedded Concentration Electrodes
Principle Investigator:	T.H. Wang - Provost's Undergraduate Research Award (PURA) to Dr. Wang's undergraduate student Eric Simone

JHU COURSES TAUGHT OR CO-TAUGHT

- **530.215 Mechanics Based Design**
  This course introduces stress and strains in three dimensions, transformations, combined loading of components, failure theories, buckling of columns, stress concentrations, and introduction to finite elements methods. It also covers design of fasteners, springs, gears, bearings, and other components. Spring 2008, Spring 2009, Spring 2010, ~50 students

- **520/530/580.495 Microfabrication Laboratory** (also listed as **520.773 Advanced Topics in Fabrication and Micro Engineering**) (with Andreou)
  This laboratory course introduces the principles used in the construction of microelectronic devices, sensors, and micromechanical and microfluidic structures. Students will work in the laboratory on the fabrication and testing of a device. Accompanying lectures material covers basic processing steps, design and analysis of CAD tools, and national foundry services. Fall 2003, Fall 2004, Fall 2005, Fall 2006, Fall 2007, Fall 2008, Fall 2009, Fall 2010, Fall 2011, Fall 2012, Fall 2013, Fall 2014, Fall 2015, Fall 2016, Fall 2017 ~40 students.

- **530/580.496 Micro/Nanoscience and Biotechnology**
  An introduction to the physical and chemical principles important to MEMS, BioMEMS, and Bionanotechnology. Topics include scaling laws, colloids and surfaces, micro and nanofluidics, thermal forces and diffusion, chemical forces, electrokinetics, electric aspects of surface chemistry, capillary forces and surface tension, and top-down and bottom-up nanofabrication. Fall 2006, ~20 students.

- **580.451 & 580.452 Cell and Tissue Engineering Lab (1) & (2)** (also listed as 530.451) (with Elisseeff, Yarema, Green, and Levchenko)
  Cell and tissue engineering is a field that relies heavily on experimental techniques. This laboratory course consists of three five experiments that will provide students with valuable hands-on experience in cell and tissue engineering. Students will learn basic cell culture procedures and specialized techniques related to faculty expertise in cell engineering, microfluidics, gene therapy, microfabrication and cell encapsulation. Experiments include the basics of cell culture techniques, gene transfection and metabolic engineering, basics of cell-substrate interactions I, cell-substrate

interactions II, and cell encapsulation and gel contraction. Fall 2004, Spring 2005, Fall 2005, Spring 2006, Fall 2006, Spring 2007, Fall 2007, Spring 2008, Fall 2008, Spring 2009, Fall 2009, Spring 2009, Fall 2009. Spring 2010, Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Spring 2013, Fall 2013, Spring 2014, Fall 2014, Spring 2015, Fall 2015, Spring 2016, Fall 2016, Spring 2017, Fall 2017 ~ 10 students,

- **530/580.672 Biosensing and BioMEMS**
  The course discusses the principles of biosensing and introduces micro- and nano-scale devices for fluidic control and molecular/cellular manipulation, measurements of biological phenomena, and clinical applications. Spring 2004, Spring 2005, Spring 2006, Spring 2007, Fall 2008, Fall 2010, Fall 2011, Spring 2013, Spring 2014, Spring 2015, Spring 2016 ~15 students

- **670.619 Fundamental Physics and Chemistry of Nanomaterials** (with Searson, Pomper, Reich, McCaffery and Timp) Fall 2014, 2105, 2016, 2017 ~ 20 students

ACADEMIC MENTORSHIP

Research Associates & Postdoctoral Fellows

Current:

- Liben Chen, PhD
- Thomas Pisanic, PhD
- Kuangwen (Wen) Hsieh, PhD
- David Gaddes, PhD
- Johan Melendez, PhD

Previous:

- Chun-Yang Zhang, PhD (Jun 2003-Jan 2005)
  Current position: Professor, Shenzhen Institutes of Advanced Technology, China
- Dr. Fizan Abdullah, MD/PhD (Feb 2008 –De. 2013)
  Current position: Associate Professor, Department of Surgeon, Johns Hopkins University
- Seungkyung Park, PhD (Aug 2009-Sep 2011)
  Current position: Assistant Professor, Mechanical Engineering Department, Korea University of Technology and Education (Koreatech), Korea
- Guoxiang Cai, MD (Sep 2010-Apr 2011)
  Current position: Associate Professor & Surgeon, Medical College of Fudan University, China
- Chih-Han Chiou, PhD (Jan 2011-Dec 2011)
  Current position: Principal Investigator in Microsystems Technology Center, ITRI South, Industrial Technology Research Institute (ITRI), Tainan Country, Taiwan
- Ling Zhang, PhD (Aug 2011 – Dec 2011)
  Current Position: Assistant Professor, WPI Advanced Institute for Materials Research, Tohoku University, Sendai, Japan
- Suneil Hosmane, PhD (Jan 2012-June 2012) (National Siebel Scholar)
  Current Position: Senior Research Scientist at Becton, Dickinson and Company (BD)

- Kelvin Liu, PhD (Mar 2011-Oct 2012) (National Siebel Scholar)
  Current Position: President & CEO, Circulomics Inc.
- Jen-Kuei Wu, PhD (Jun 2012-June 2013)
  Current Position, Postdoc, National Tsing Hua University, Taiwan
- Stephanie Fraley, PhD (July 2012-August 2014) (Burroughs Wellcome Fund Career Award)
  Current Position: Assistant Professor, Biomedical Engineering Department, University of San Diego
- Weihua Guan, PhD (August 2013- November 2014)
  Current position: Assistant Professor, Electrical Engineering Department, Penn State University
- An-Chi Wei, PhD (October 2015-February 2016)
  Current position: Assistant Professor, Electrical Engineering Department, National Taiwan University
- Wei Liu, PhD (January 2015-December 2015)
  Current position: Associated Professor, Department of Microelectronics, Wuhan University
- Yi-Fan Hsieh, PhD (August 2015-July 2016)

  Current position: Project Leader, Quark Biosciences, Inc.

Graduate Students Mentored

Current:

- Alejandro Stark (ME), PhD (2011-)
- Ye Zhang (BME), PhD (2011-)
- Jason Lee (BME), PhD (2012-) (co-advisee with Prof. Hai-Quan Mao)
- Pornpat Athamanolap (BME), PhD (Thailand Government Fellowship) (2013-)
- Chrissy O'Keefe (BME), PhD (NSF Fellowship) (2013-)
- Aniruddha Kaushik (ME), PhD (2014-)
- Andrew Li (BME), PhD (NSF Fellowship) (2014-)
- Pengfei Zhang (BME), PhD (2016-)
- Alex Trick (BME), PhD (2016-)
- Fan-En Chen (BME), PhD (2017-)
- Sixuan Li (ME), PhD (2017-)
- Peiwei Lee (ME), PhD (2018-)
- Joon Soo Park (BME), PhD (2018-)

Previous:

- Dr. Hsin-Chih Yeh, PhD graduated in March 2008
  Current Position: Assistant Professor, Biomedical Engineering Department, UT Austin
- Dr. Yi-Ping Ho, PhD graduated in June 2008
  Current Position: Assistant Professor, iNANO Center, Aarhus University, Denmark
- Dr. Hunter Chen, PhD graduated in June 2008
  Current Position: Research Scientist at Regeneron Pharmaceutics Inc.

- Dr. Chris Puleo, PhD graduated in October 2009,
  Current Position: Research Scientist at GE Global Research Center
- Dr. Kelvin Liu, PhD graduated in February 2011 (National Siebel Scholar)
  Current Position: Founder and President, Circulomics Inc.
- Dr. Vasudev Bailey, PhD graduated in August 2010 (National Siebel Scholar)
  Current Position: Consultant at McKinsey & Company
- Divya Nalayanda , PhD graduated in January 2013
  Current Position: Postdoc in Johns Hopkins School of Medicine
- Yi Zhang (BME), PhD graduated in March 2013 (Hodson Fellowship)
  Current Position: Assistant Professor, The Institute of Bioengineering and Nanotechnology, Agency of Science, Technology and Research, Singapore
- Tushar Rane (BME), PhD graduated in June 2014
  Current Position: Viterbi Postdoctoral Fellows, University of Southern California
- Cyrus Beh (BME), PhD graduated in July 2014 (A* Star Scholarship)
  Current Position: Postdoctoral Researcher, The Institute of Bioengineering and Nanotechnology, Agency of Science, Technology and Research, Singapore
- Yunke Song (BME), PhD graduated in August 2014
  Current Position: Senior Researcher in Biotech Sector, Morgan Stanley, Tokyo, Japan
- Helena Zec (BME), PhD graduated in August 2015
  Current position: Consultant, ZS Associates
- Dong Jin Shin (BME), PhD graduated in January 2016
- Sarah Friedrich (BME), PhD graduated in March 2018
  Current position: Research Scientist in Two Pore Guys, Inc.
- Shu-Yi Chao, MS graduated in 2005
  Current Position: Engineer in industry
- Kent Murray, MS graduated in 2007
  Current Position: Engineer in U.S. DoD
- Lingshu (Lily) Liu, (BME), MS graduated in 2015
  Current Position: Medical student at Albert Einstein College of Medicine
- Tony Zheng (BME), MS graduated in 2017
  Current Position: MD/PhD student at OHSU in Oregon
- Brant Axt (BME), MS graduated in 2017
- Meet Pastakia (BME), MS graduated in 2018

<u>Undergraduate Research Assistants:</u>

- Eric Simone (BME, 2003-2004)
  (Recipient of JHU Provost's Undergraduate Research Award, 2003)
  Current status: Scientist at Vertex Pharmaceutics Inc.
- Matthew Kung (BME, 2003-2005)
  Current status: Medical student at Tufts University

- Marcos Kuorki (BME, 2004-2005)
  (Recipient of JHU Provost's Undergraduate Research Award, 2004)
  Current status: M.D/Ph.D. student at University of Minnesota
- Jeff Johnson (EE, 2004)
  Current status: Industry
- Annys Santoso (BME, 2004)
  Current status: Industry
- Caroline Chen (ChemE, 2006-2007)
- Karen Liu (BME undergraduate from University of California, Irvine; 2006)
- Jennifer Ferrigan (BME, 2007)
- Paxson Trautman(BME, 2006-2007)
- Lok Man Chu (BME 2006-2007)
- Alic Chen (ME, 2006-2007)
- Teck Chun Lim (BME, 2005-2007)
  Current status: PhD student at MIT
- Peter Lillehoj (ME, 2007)
  Current status: PhD student at University of California, Los Angeles
- Jennifer Petsche (BME, 2006-2007)
- Chao Yin (Duke University , NSF REU Summer 2009, winner Pratt Fellowship)
- Sean Virgile (U. of Rochester , NSF REU Summer 2008, winner Barry M. Goldwater Scholarship)
- Benjamin Rho (BME, 2008)
- Joe Chung (BME, 2008)
- Jasper Chen (2007-2008)
- Katrin Passlack (University of Oklahoma, NSF REU Summer 2010)
- Ye Zhang (Tsinghua University, JHU-Tsinghua BME student exchange program 2010)
- Alex Lo (Materials Sciences, 2009-2010)
- Brian Keeley (ChemE, 2008-2011)
  (Recipient of JHU Provost's Undergraduate Research Award, 2009)
- Weizhuang (BME 2008-2011)
- Chris Razavi (Biophysics, 2009-)
- Jennifer Tsuan (BME, 2010)
- Taehong Min (BME, 2010)
- Allatah Mekile (Biotechnology, East Stroudsburg University, NSF REU Summer 2011)
- Thanapoom Boonipat (BME, 2011)
- Frank Qin (BME 2011-2012)
- Joseph Shin (BME, 2011)

- Jeffery Knox (BME, 2011)
- Melissa Gosse (ChemBioE, 2011)
- Justin Lee (ME, 2010-2011)
- Polly Ma (BME, 2013-)
- Rachel Bang (BME, 2014-)
- Chris Glover (Bioengineering, University of Missouri-Columbia, NSF REU Summer 2014)
- Vincent Wu (BME, 2015-)
- Stephanie Cai (BME, 2015)-

Ph.D. Thesis Committee:

- Zinnia Xiu, Ph.D. in BME, JHU 2017 (Advisor: Peter Searson)
- Dong Jin, Ph.D. in BME, JHU 2016 (Advisor: Jeff Wang)
- Helena Zec, Ph.D. in BME, JHU 2015 (Advisor: Jeff Wang)
- Tushar Rane, Ph.D. in BME, JHU 2014 (Advisor: Jeff Wang)
- Cyrus Beh, Ph.D. in BME, JHU 2014 (Advisor: Jeff Wang)
- Yunke Song, Ph.D. in BME, JHU 2014 (Advisor: Jeff Wang)
- Yi Zhang, Ph.D. in BME, JHU 2013 (Advisor: Jeff Wang)
- Divya Nalayanda, Ph.D. in BME, JHU 2013 (Advisor: Fizan Abdullah; Co-advisor: Jeff Wang)
- Kelvin Liu, Ph.D. in BME, JHU 2011 (Advisor: Jeff Wang)
- Raymond Cheong, M.D./Ph.D in BME, JHU 2010 (Advisor: Andre Levchenko)
- Vasudev Bailey, Ph.D. in BME, JHU 2010 (Advisor: Jeff Wang)
- Chris Puleo, Ph.D. in BME, JHU 2010 (Advisor: Jeff Wang)
- Timothy Gar-Ming Leong, Ph.D. in ChemBE, JHU, 2008 (Advisor: David Gracias)
- Hojun Cho, Ph.D. in BME, JHU, 2008 (Advisor: Andre Levchenko)
- Hunter Chen, Ph.D. in BME, JHU, 2008 (Co-advised by Kam Leong and Jeff Wang)
- Yi-Ping Ho, Ph.D. in ME, JHU, 2008 (Advisor: Jeff Wang)
- Hsin-Chih Yeh, Ph.D. in ME, JHU, 2008 (Advisor: Jeff Wang)
- Nirveek Bhattacharjee, Ph.D. in BME, JHU, 2007 (Advisor: Nitish Thakor)
- Yi-Lan (Allen) Wang, Ph.D. in Materials MSE, 2007 (Advisor Michael Yu)
- Fan Yang, Ph.D. in BME, JHU, 2006 (Advisor: Kam Leong)
- Katie Bowman, Ph.D. in BME, JHU, 2005 (Advisor: Kam Leong)

Advisor for ME Senior Design Project:

- Project title: Increased Safety and Reliability of Toxic Gas Mitigation System; Team members: W. Pak, T. Lee and J, Doe; Sponsor: The Army Research Laboratory, Sensors and Electron Devices Directorate (2007-2008)
- Project title: Bone Re-Attachment Instrument for NeuroSurgery- Means to Provide Cranial Bone Flap Fixation; Team Member Samuel Giovannini, Emre Oguzoncul, Kathryn Smith, Sponsor: Synthes Corporation

PROFESSIONAL SERVICE

Editorial Board

Guest Editor: *Micromacines*	2017-2018
Advisory Board Member: *Lab on a Chip*	2016-
Editorial Board Member: *Biomicrofluidics*	2016-
Editorial Board Member: *Micro & Nano Letters*	2013-
Guest Editor: *Biosensors*	2012-2013
Editorial Board Member: *Journal of Laboratory Automation (JALA)*	2011-2016
Guest Editor: *Journal of Laboratory Automation (JALA)*	2009-2010
Editorial Board Member: *Journal of Nanomedicine: Nanotechnology, Biology and Medicine*	2004-2008

Research Community Service

Presenter for Technology Showcase on Capitol Hill, Demonstration of mobile point-of-care (POC) devices on Capitol Hill as a part of the joint NIH and AIMBE Congressional Biomedical Technology Exhibition, 2017

Discussion Leader, Gordon Research Conference - Physics and Chemistry of Microfluidics, 2017

Section Chair, 2017 American Physical Society (APS) March meeting, New Orleans

Promotion Committee: The 21st International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2017)

Co-Chair of Technical Program Committee: The 12th Annual IEEE International Conference on Nano/Micro Engineered and Molecular Systems (IEEE NEMS 2017)

Advisory Committee, College of Biomedical Engineering, Taipei Medical University, 2016

Scientific Review Committee, Institute of Biomedical Engineering and Nanomedicine (IBEN) at the National Health Research Institutes (NHRI), 2016

Discussion Leader: The 3rd Annual Meeting of Human Placenta, Bethesda, April 14-15, 2016

Technical Program Committee: 19th International Conference on Miniaturized Chemical and Biochemical Analysis Systems (micro-TAS 2015)

Technical Program Committee: The 5th International Conference on Optofluidics (Optofluidics 2015)

Advisory Committee, College of Biomedical Engineering, Taipei Medical University, 2015

Technical Program Chair, The 8th IEEE International Conference on Nano/Molecular Medicine and Engineering (IEEE-NANOMED 2014)

Advisory Board Member: Lab-on-a-chip & Microarray World Congress, 2014

Technical Program Committee: 27th IEEE International Conference on Micro Electro Mechanical Systems (IEEE MEMS 2014)

Awards Co-Chair: The 14th IEEE International Conference on Nanotechnology (IEEE NANO 2014)

Technical Program Committee: The 14th IEEE International Conference on Nanotechnology (IEEE NANO 2014)

Technical Program Committee: 18th International Conference on Miniaturized Chemical and Biochemical Analysis Systems (micro-TAS 2014)

Awards Co-Chair: The 13th IEEE International Conference on Nanotechnology (IEEE NANO 2013)

Technical Program Committee: 26th IEEE International Conference on Micro Electro Mechanical Systems (IEEE MEMS 2013)

Technical Program Committee: The 8th Annual IEEE International Conference on Nano/Micro Engineered and Molecular Systems (IEEE NEMS 2013)

Conference Organizing Chair: 6th IEEE International Conference on Nano/Molecular Medicine and Engineering (IEEE-NANOMED), 2012

Technical Program Committee: 12th International Conference on Nanotechnology (IEEE NANO 2012)

Technical Program Committee: The 20th IFIP/IEEE International Conference on Very Large Scale Integration (VLSI-SoC), 2012

Technical Program Committee: The 7th Annual IEEE International Conference on Nano/Micro Engineering and Molecular Systems (IEEE NEMS), 2012

Steering Committee: The First Annual EITC Young Investigator Conference (EITCV-YIC), 2011

Program Co-Chair: 5th IEEE International Conference on Nano/Molecular Medicine and Engineering (IEEE-NANOMED), 2011

Technical Committee: IEEE Nanotechnology Council for Nanosensors and Nanoactuators, 2006-present

Technical Program Committee: The 19th IFIP/IEEE International Conference on Very Large Scale Integration (VLSI-SoC), 2011

Judge: International Contest of Applications in Nano/Micro Technologies (iCAN), Beijing, China, 2011

Technical Program Committee: The 6th Annual IEEE International Conference on Nano/Micro Engineering and Molecular Systems (IEEE NEMS), 2011

Judge for poster session: The 13th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS), 2009

Session Chair: HUGO IX International Symposium on Mutation in The Genome (2007 Mutation Detection), 2007

Session Chair: Biomedical Engineering Society Annual Fall Meeting (BMES), 2007

Technical Program Committee: IEEE International Conference on Nanotechnology (IEEE NANO), 2007

Technical Program Committee: Annual International Conference on Nano/Micro Engineered and Molecule System (IEEE-NEMS), 2006

Session Chair: The International Conference on Bio-nano-Informatics (BNI) Fusion, 2005

Delegate Member: The U.S. delegation attending the First US-China Nanotechnology Forum, hosted by National Science Foundation and Chinese Academy of Sciences, Beijing, 2004.

University and Department Service

JHU Ad Hoc Committee for Faculty Promotion	2017-
JHU ChemBE Head Search Committee	2017-2018
JHU ME Graduate Program Committee	2017-
JHU BME Director Search Committee	2015-2016
JHU Ad Hoc Committee for Faculty Promotion	2015
WSE ECE Departmental Internal Review Committee	2015
JHU ME Biomechanics Faculty Search Committee (Chair)	2014-15
JHU BME SysBio Faculty Search Committee,	2014-2015
Whiting School of Engineering Safety Committee	2011-2014
JHU BME SysBio Faculty Search Committee,	2013-2014
KSAS/WSE Faculty Admissions Technology Work Group	2011-2012
JHU ME Biomechanics Faculty Search Committee (Chair)	2012-13
JHU ME Fluidics Faculty Search Committee	2012
JHU ME Biomechanics Faculty Search Committee	2011
ME Lecturer Search Committee	2011
ME Biomechanics Concentration Committee	2004-
ME Undergraduate Curriculum Committee	2010-
ME Undergraduate Program & Student Affairs Committee	2010-2012
Whitaker Institute Lithography and Fabrication Facility (Co-director)	2003-
Advisor for JHU Taiwanese American Students Association	2007-2010
ME Seminar Series & Course Committee (Chair)	2007-2010
ME Undergraduate Program & Student Affairs Committee (Chair)	2007-2010
Advisor for Mechanical Engineering Undergraduate Student Council	2007-2010
Engineering Mechanics Undergraduate Curriculum Committee	2005-2006

SCIENTIFIC REVIEW ACTIVITIES

Reviewer, Journals

Nature Materials, Nature Methods, Nature Medicine, Nature Nanotechnology, Nature Communications, Nature Protocols, Proceedings of the National Academy of Sciences, Nanoletters, Advanced Materials, Journal of the American Chemical Society, Nucleic Acids Research, Lab on a Chip, Analytical Chemistry, Langmuir, BBA - Molecular Cell Research, ACS NANO, Nanotechnology, Small, Theranostics, Analytica Chimica Acta, Biomedical Microdevices, ChemPhysChem, European Journal of Pharmaceutics and Biopharmaceutics, Nanomedicine, Sensors and Actuators A: Physics, Sensors and Actuators B: Chemical, IEEE/ASME Journal of Microelectromechanical System, IEEE/ASME Transactions on Mechatronics, IEE Proceedings Nanobiotechnology, Journal of Microfluidics and Nanofluidics, Journal of Nanomedicine: Nanotechnology, Biology and Medicine, Journal of Biomedicine and Biotechnology, Materials Today, Epigenomics. PLOS-One, Scientific Advances, Biomicrofluidics

Reviewer, Granting Agencies

NIH Innovative Molecular Analysis Technologies for Cancer Research (IMAT)-R33 Ad-Hoc Reviewer Panel, November 2018

National Health Research Institute (NHRI) of Taiwan, SRC-4 Study Section, August 2018

NIH ISD Study Section, June 2018

NIH Innovative Molecular Analysis Technologies for Cancer Research (IMAT)-R21 Ad-Hoc Reviewer Panel for R33, March 2018

NIH New Innovator Award (DP2) Ad-Hoc Review Panel, January 2018

National Health Research Institute (NHRI) of Taiwan, SRC-4 Study Section, August 2017

NIH Innovative Molecular Analysis Technologies for Cancer Research (IMAT) Ad-Hoc Reviewer Panel, April 2017

NIH Pathway to Independence Award (K99/R00) Ad-Hoc Review Panel May 2017

The Netherlands Organisation for Scientific Research, Proposal Reviewer, March 2017

Academia Sinica Research Award, Taiwan, Review Committee. February 2017

NIH New Innovator Award (DP2) Ad-Hoc Review Panel, January 2017

National Health Research Institute (NHRI) of Taiwan, SRC-4 Study Section, August 2016

NIH Innovative Molecular Analysis Technologies for Cancer Research (IMAT) Ad-Hoc Reviewer Panel, March 2016

NIH CSR IAM meeting 2016/10 ZRG1 BST-T (02), June & November 2016

National Health Research Institute (NHRI) of Taiwan, SRC-4 Study Section, 2016

NIH New Innovator Award (DP2) Ad-Hoc Review Panel, February 2016

NSF Nanobiosensing Program, January 2016

National Health Research Institute (NHRI) of Taiwan, SRC-4 Study Section, 2015

NIH Special Emphasis Review Panel ZDK1-GRB-S for Developmental Centers for Interdisciplinary Research in Benign Urology (P20), 2015

NIH Enabling Bioanalytical and Imaging Technologies Study Section (EBIT), February 2015

NIH Single Cell Analysis Special Emphasis Panel, July 2014

National Health Research Institute (NHRI) of Taiwan, SRC-4 Study Section, 2014

NIH Instrumentation and Systems Development Study Section (ISD), December 2013

NIH/NCI Early-Stage Innovative Molecular Analysis Technology Development for Cancer Research (IMAT) Special Emphasis Panel, 2013

NIH National Human Genome Research Institute Sequencing Technology (ZHG1 HGR-N(M1)), 2013

NIH Cell, Computational, and Molecular Biology (SBIR/STTR Review Panel ZRG1-J(15)), 2013

National Health Research Institute (NHRI) of Taiwan, SRC-4 Study Section, 2013

UK Cancer Research Program, 2013

National Science Foundation, CBET Biosensing Program, 2012

NIH Emphasis Panel/Scientific Review Group ZRG1 BST-J (50) R M meeting, 2012

National Science Foundation, ECCS Division's EPMD (Electronics, Photonics and Magnetic Devices) Technologies Program, 2012

NIH Emphasis Panel/Scientific Review Group ZRG1 BST-X (02) M meeting, 2012

Collaborative Research Fund-Earmarked Research Grant (ERG), Hong Kong, 2012

NIH Bioengineering Sciences and Technologies R15 Panel, 2011

Institute for NanoBioTechnology Pilot Award Program, 2011

Innovation and Technology Fund, Hong Kong 2011

Collaborative Research Fund-Earmarked Research Grant (ERG), Hong Kong, 2011

The Joint Science and Technology Office for Chemical and Biological Defense (JSTO-CBD) FY10/11 Program, Defense Threat Reduction Agency (DTRA)

Collaborative Research Fund-Earmarked Research Grant (ERG), Hong Kong , 2010

National Science Foundation, Nanomanufacturing Program

National Science Foundation, Sensors and Sensor Network Program

National Science Foundation, Bioengineering Cluster in the Nanoscale Science and Engineering Program, NIRT

National Science Foundation, Analytical & Surface Chemistry (ASC) Program

National Science Foundation, Inorganic, Bioinorganic and Organometallic Chemistry Program

National Institutes of Health, Center for Scientific Review Special Emphasis Study Session

National Institutes of Health, Platform Biosensor Technologies for Point-of-Care Diagnostics Study Session

U.S. Army Research Office, Chemical and Biological Defense Basic Research Program

American Chemical Society, Petroleum Research Fund

Pilot Research Program, NIEHS Center in Molecular Toxicology, Vanderbilt University

Excellence Research Project of National Taiwan University, Taipei, Taiwan

The Agency for Science, Technology and Research's (A*STAR) Biomedical Research Council (BMRC) Program, Singapore

Davidson Fellow Program, Davidson Institute