

# Curriculum Vitae

## Yin-Ting Yeh

Address: N223 Millennium Science Complex, University Park, PA 16802  
Phone: (408) 242-7883, Email: yxy155@psu.edu

### EDUCATION

#### Ph.D., Biomedical Engineering

The Pennsylvania State University, University Park, PA, USA (07/2009-05/2015)

Dissertation: Nanomaterial Integrated Device for point-of-care Virus Detection

#### M.S., Chemical and Biomolecular Engineering

University of Notre Dame, Notre Dame, IN, University Park, PA, USA (07/2005-07/2007)

Thesis: Develop of a Hydrodynamic Technique for Rapid Concentration of Dilute Suspensions

#### B.A., Engineering and System Science

National Tsing Hua University, Hsinchu, Taiwan (07/1999-05/2003)

Major: Material Science Engineering

### PROFESSIONAL EXPERIENCE

**Graduate Assistant**, Biomedical Engineering, Pennsylvania State University, PA, USA (05/09-present)

**R&D Project Manager**, Touchdown Technologies, Inc, Baldwin Park, CA, USA (02/2008-04/2009)

**Process integration Engineer**, Touchdown Technologies, Inc, Baldwin Park, CA, USA (08/2007-02/2008)

**Graduate Assistant**, Chemical and Biomolecular Engineering, University of Notre Dame, IN, USA (08/05-06/07)

**Research Intern**, Material Science and Engineering, National ChiaoTung University, HsinChu, Taiwan (06/01-12/03)

### PUBLICATION

#### Peer-reviewed Journal Articles

1. **Y.-T.Yeh**, Y.Tang, A. Sebastian, N. Perea-Lopez, I. U. Albert, H. Lu, M. Terrones, S.-Y. Zheng, "Carbon Nanotube Microdevice for Label-free Virus Isolation and Analysis", *Nature*, May. 2015 (Submitted)
2. **Y.-T. Yeh**, R. A. Harouaka, and S.-Y. Zheng, "Integrated Microfluidic Tandem Flexible Micro Spring Array (tFMSA) Device for Cell Fractionation", *Analytical Chemistry*, May. 2015 (submitted).
3. Y.Tang, **Y.-T.Yeh**, H.Chen, C.Yu, X.Gao, and Y.Diao, "Comparison of Conventional RT-PCR, Semi-Nested RT-PCR, Reverse-transcriptase Real-Time Quantitative PCR, and Reverse-transcription Loop-mediated Isothermal Amplification for the Detection of Tembusu virus", *Avian Pathology*, Mar.2015 (under review).
4. Y.Tang, H.Liu, A.Sebastian, C.Praul, **Y.-T.Yeh**, I.Alberts, and S.-Y.Zheng, "Genomic characterization of a turkey reovirus field strain by Next-Generation Sequencing", *Journal of Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases*, 2015.
5. **Y.-T. Yeh**, M. Nisic, X. Yu, Y. Xia, and S.-Y. Zheng, "Point-of-Care Microdevices for Blood Plasma Analysis in Viral Infectious Diseases", *Annals of Biomedical Engineering*, 42, 2333-2343, 2014.
6. R. A. Harouaka, M.-D. Zhou, **Y.-T Yeh**, W. J. Khan, A. Das, X. Liu, et al., "Flexible micro spring array device for high-throughput enrichment of viable circulating tumor cells", *Clinical chemistry*, vol. 60, pp. 323-333, 2014.
7. B. Ramaswamy, **Y.-T. Yeh**, and S.-Y. Zheng, "Microfluidic device and system for point-of-care blood coagulation measurement based on electrical impedance sensing", *Sensors and Actuators B: Chemical*, vol. 180, pp. 21-27, 2013.
8. H. Tseng, **Y.-T. Yeh**, K. Lin, and C. Liu, "Ag Electromigration Against Electron Flow in Sn5Ag/Cu Solder Bump," *Electrochemical and Solid-State Letters*, vol. 12, pp. H445-H448, 2009.
9. **Y.-T. Yeh**, C. Chou, Y. Hsu, C. Chen, and K. Tu, "Threshold current density of electromigration in eutectic SnPb solder", *Applied Physics Letters*, vol. 86, p. 203504, 2005.

#### Refereed Conference proceedings

1. **Y.-T. Yeh**, Y. Tang, H. Lu, M. Terrones, and S.-Y. Zheng, "A CNT based microfluidic device for label-free virus capture and analysis", in *18<sup>th</sup> International Conference on Solid-State Sensors, Actuators and Microsystems (Transducer '15)*, Anchorage, AK, USA, June 21-25, 2015. (oral presentation)
2. Y. Tang\*, **Y.-T. Yeh\***, H. Lu, S.-Y. Zheng, "Carbon Nanotube Microfluidic Device Combined with Next-Generation Sequencing Technology for Rapid Diagnosis of H5 and H7", in *9<sup>th</sup> International Symposium on Avian Influenza*, Athens, GA, USA, April 12-15, 2015. (\*equal contribution) (oral presentation)
1. **Y.-T. Yeh**, N. Perea-Lopez, Y. Tang, B. U. McKellar, R. Harouaka, H. Lu, M. Terrones, and S.-Y. Zheng, "MEMS Device integrated with vertically aligned carbon nanotubes for virus capture and detection", in *proceedings of the 15th in the series of Hilton Head Workshops on the science and technology of solid-state sensors, actuators, and microsystems (Hilton Head '14)*, Hilton Head Island, SC, USA, June 8-12, 2014. (oral presentation)
2. **Y.-T. Yeh**, N. Perea-Lopez, A. Dasgupta, R. Harouaka, M. Terrones, and S.-Y. Zheng, "MEMS device with vertically aligned carbon nanotube for blood plasma extraction", in *14th International Conference on the Science and Application of Nanotubes (NT '14)*, Los Angeles, CA, USA, June 2-6, 2014.
3. **Y.-T. Yeh**, N. Perea-Lopez, M. Terrones, and S.-Y. Zheng, "Blood Plasma Biomarker Separation Using a MEMS Device Integrated with a Vertically Aligned Carbon Nanotube Membrane", in *2013 Fall Materials Research Society Meeting and Exhibition (MRS '13)*, Boston, NE, USA, December 1-6, 2013. (oral presentation)
4. **Y.-T. Yeh**, N. Perea-Lopez, A. Dasgupta, R. Harouaka, M. Terrones, and S.-Y. Zheng, "Microfluidic device with carbon nanotube channel walls for blood plasma extraction", in *proceedings of the 26th IEEE International Conference on Micro Electro Mechanical Systems (MEMS '13)*, Taipei, Taiwan, January 20-24, 2013, pp. 951-954.
5. **Y.-T. Yeh**, W. Khan, T. Xu, D. Wang, and S.-Y. Zheng, "Temperature-induced nanochannel array synthesis in microchannels", in *proceedings of the 13th IEEE International Conference on Nanotechnology (NANO '13)*, Beijing, China, August 5-8, 2013, pp. 525-528. (oral presentation)
6. R. Harouaka, M.-D. Zhou, **Y.-T. Yeh**, C. Truica, A. Das, J. Kaifi, et al., "Analysis of CTCs enriched from whole blood samples of Breast, Lung and Colorectal cancer patients with a flexible microspring array device", in *American Association for Cancer Research (AACR '13)*, Washington DC, USA, April 6-10, 2013.
7. R. Harouaka, M.-D. Zhou, **Y.-T. Yeh**, W. Khan, J. Allerton, and S.-Y. Zheng, "Viable circulating tumor cell enrichment by flexible micro spring array", in *proceedings of the 34th Annual International Conference of the IEEE Engineering in Medicine and Biology (EMBS '12)*, San Diego, CA, USA, August 28-September 1, 2012, pp. 6269-6272.
8. **Y.-T. Yeh**, R. Harouaka, P. Zhang, D. Chen and S.-Y. Zheng, "Tandem Flexible Micro Spring Array for Size Based Cell Fractionation", in *proceedings of the 34th Annual International Conference of the IEEE Engineering in Medicine and Biology (EMBS '12)*, San Diego, CA, USA, August 28-September 1, 2012.
9. B. Ramaswamy, **Y.-T. Yeh**, and S.-Y. Zheng, "Microfluidic device to perform impedometric detection of Activated Partial Thromboplastin Time of blood", in *Proceedings of the 16th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '11)*, Beijing, China, June 5-9, 2011, p. 222-225.
10. S. Maheshwari, D. Hou, **Y.-T. Yeh**, and D. T. Leighton Jr, "Enhancing Bioparticle Trapping at a Converging Micro-Flow with Local Coulombic Forces and Roughness-Induced Surface Currents", in *proceedings of the The 2007 Annual Meeting of American Institute of Chemical Engineers (AIChE '07)*, Salt Lake City, UT, USA, November 4-9, 2007.

#### Patent

1. S. Zheng, R. Harouaka, M. Zhou, and **Y.-T. Yeh**, "Flexible filter device for capturing of particles or cells in a fluid", US Patent App. 13/744,051, 2013.

#### Conference Poster Presentations

1. "An MEMS Device for Point-of-Care Infectious Diseases Detection", in *Graduate Exhibition, The Pennsylvania State University*, University Park, PA, USA, March 22, 2015
2. "An integrated Micro-Device for Label-free Avian Influenza Virus Isolation", in *9<sup>th</sup> International Symposium on Avian Influenza*, Athens, GA, USA, April 12-15, 2015
3. "MEMS Device integrated with vertically aligned carbon nanotubes for virus capture and detection", in *proceedings of the 15th in the series of Hilton Head Workshops on the science and technology of solid-state sensors, actuators, and microsystems (Hilton Head '14)*, Hilton Head Island, SC, USA, June 8-12, 2014.
4. "BioMEMS Device Intergrated With CNxCNT Membrane For Blood Plasma Extraction", *BMES annual meeting*, San Antonio, TX, USA, October, 2014.
5. "Blood Plasma Biomarker Separation Using a MEMS Device Integrated with a Vertically Aligned Carbon Nanotube Membrane", *Material Day 2013, The Pennsylvania State University*, University Park, PA, USA, October, 2013.
6. "Microfluidic Device With Carbon Nanotube Channel Walls for Blood Plasma Extraction", *College of Engineering Research Symposium (CERS 2013)*, Pennsylvania State University, University Park, PA, USA, April, 2013.
7. "Tandem Flexible Micro Spring Array (tFMSA) for Cancer Cells Viability Screening", *2012 IEEE Micro- and Nanoengineering in Medicine Conference (MNMC 2012)*, Ka'aanapali, HI, USA, December, 2012.
8. "The Simulation of Geometry Induced Directional-dependant Flow Resistance Pumping Mechanism", *BMES annual meeting*, Atlanta, GA, USA, October, 2012.
9. "Tandam Flexible Mirco Spring Array (tFMSA) For Size Based Cell Fractionation", *BMES annual meeting*, Atlanta, GA, USA, October, 2012.
10. "Flexible Micro Spring Array Device For Viable CTC Culture And Drug Efficacy Testing", *2<sup>nd</sup> Internation Symposium on Advances in Circulating Tumor Cells (ACTC)*, Athens, Greece, September, 2012
11. "Microfluidic Device To Perform Impedometric Detection of Activated Partial Thromboplastin Time of Blood", *Solid-State Sensors, Actuators and Microsystems (Transducers '11)*, Beijing, China, June 5-9, 2011
12. "Integrated Nanofluidic Channel Device For Biological Application" *BMES annual meeting*, Pittsburg, PA, USA, October, 2009.

**National Center for Biotechnology Information (NCBI) Genbank Submission**

1. Avian Influenza virus, A/duck/PA/2099/2012 (H11N9), Apr.2015
2. Avian Influenza virus, A/chicken/PA/7659/1985 (H5N2) (KP674444-KP674451), Feb. 2015
3. Infectious bursal disease virus, IBDV/Turkey/PA/00924/14 (KP642111~ KP642112), Jan. 2015
4. H5N2 influenza A virus capture project, Sequence Read Archive (SRA), PRJNA267235, Dec.2014

**TEACHING EXPERIENCE AND LEADERSHIP**

**Teaching Assistant**, Biomedical Applications of Microfluidics

The Pennsylvania State University, PA, USA (Fall/2010,2011, 2012, 2013)

**Teaching Assistant**, Transport Phenomenon

Transport Phenomenon, University of Notre Dame, IN, USA (Spring/2006,2007)

**Corporal**, Military Police

Military Police, Taipei, Taiwan (07/2003-02/2005)

**AWARDS AND SCHOLARSHIP**

- College of Engineering Travel Fund, 2014
- Travel Award, 2014 Hilton Head Conference, 2014
- College of Engineering Travel Fund, 2013
- Scholarship, Pennsylvania State University, 2009-present
- Scholarship, University of Notre Dame, 2007-2008

**PROFESSIONAL ACTIVITY**

### **MENTORING EXPERIENCE**

- *Brian McKellar*, Sophomore, The Pennsylvania State University
- Undergraduate Discovery Summer Grant (06/2013-08/2014)
- *Enrique Gonzalez Monterrubio*, Senior, University of Americas
- Summer Internship, (05/2013-09/2013)
- *Colin Burns-Heffner*, Senior, Clemson University
- The National Nanotechnology Infrastructure Network Research Experience for Undergraduates (NNIN REU) (06/2012-09/2012)
- *Ravi Shih*, Senior, Pennsylvania State University
- Schreyer College Honor Thesis (06/2011-03/2012)

### **Reviewer**

- Material Research Society (MRS)
- *Transaction on Biomedical Engineering*, IEEE
- *Sensors and Actuators B: Chemical*, Elsevier, Amsterdam, Netherlands.
- Sensors, IEEE
- *Cellular and Molecular Bioengineering*, Springer
- The 13<sup>th</sup> international conference on nanotechnology (IEEE NANO '13)
- Biomedical Engineering Society (BMES 2013)
- College of Engineering Research Symposium (CERS PSU 2013, 2014, 2015)

### **Society Member**

- American Association of Cancer Research (AACR)
- Biomedical Engineering Society (BMES)
- Institute of Electrical and Electronics Engineers (IEEE)
- IEEE Engineering in Medicine and Biology Society (EMBS)
- Material Research Society (MRS)