Curriculum Vitae Chengpeng Chen 07/02/2018

Employment

08/2018-present, Assistant Professor

Department of Chemistry and Biochemistry, University of Maryland Baltimore County (UMBC)

08/2015-07/2018, Research/Teaching Postdoctoral fellow

Department of Chemistry, St. Louis University (SLU), St. Louis, MO

- Advisor: R. Scott Martin, Ph.D.
- Main duties: Conduct research in microfluidics, 3D cell culture, and online quantitation
  Teach analytical chemistry courses

EDUCATION AND SCIENTIFIC TRAINING

09/2011-06/2015, Ph.D.

Chemistry (analytical), Michigan State University (MSU), East Lansing, MI

- Advisor: Dana M. Spence, Ph.D.
- Dissertation: 3D-printed analytical devices for diabetes therapeutics and blood banking studies

09/2007-06/2011, B.S.

Chemistry (marine/oceanographical), Ocean University of China, Qingdao, Shandong, China

- Graduated with great honor (only 8 undergraduates out of 6000+ are honored every year)

RESEARCH EXPERTISE AND INTEREST

Organs-on-a-chip
Develop 3D cell/tissue culture on microfluidic devices for fundamental and pharmaceutical studies

3D-printed analytical/biotechnological devices
Use 3D-printing to fabricate customized and versatile tools for analytical chemistry

Coupling microfluidics with commercial analytical instruments
Combine liquid handling and dynamic cell culture on microfluidics with robust quantitative schemes

Real-time/high temporal resolution quantitation
Monitor cells of interest in (near) real time to reveal key cell biology information

TEACHING EXPERIENCE

Courses instructed at St. Louis University

Fall 2017, co-instructor of Instrumental Analysis (CHEM4200, undergraduate; CHEM5200, graduate)

Spring 2017, instructor of Quantitative Analysis (CHEM 2200)

- Student evaluation=4.68/5.00
- ACS standard exam (AN17) average=36/50; national average unknown yet

Fall 2016, co-instructor of Instrumental Analysis (CHEM4200, undergraduate; CHEM5200, graduate)

- Student evaluation=4.77/5.00

Spring 2016, instructor of Quantitative Analysis (CHEM 2200)

- Student evaluation=4.67/5.00
- ACS standard exam (AN13) average=38/50 vs. national average of 26/50

Fall 2015, co-instructor of Instrumental Analysis (CHEM4200, undergraduate; CHEM5200, graduate)

- Student evaluation=4.71/5.00

Teaching service

- Customized the Sapling homework system for Quantitative Analysis teaching at SLU
- Actively involved in the restructure of Instrumental Analysis lab teaching at SLU

Teaching assistant (TA) at Michigan State University

2011-2015, TA of various chemistry labs (general, quantitative, instrumental)

PROFESSIONAL EXPERIENCE

Student mentoring

- 2016-present, mentoring an undergraduate student with development of online optical sensors
- 2016, mentored a visiting student working with electrochemical detection techniques
- 2015-present, helping to mentor graduate students in the Martin research group

Scientific community service

- 2018-present, Early Career Advisory Board Fellow, ACS Biomaterials Science&Engineering
- Peer reviewed 100+ manuscripts for 15+ journals in the field of analytical chemistry

PUBLICATION

i. Peer reviewed journal publications

1. Akash S. Munshi, Chengpeng Chen, Alexandra D. Townsend and R. Scott Martin, Use of 3D printing and modular microfluidics to integrate cell culture, injections and electrochemical analysis, Analytical Methods, DOI: 10.1039/C8AY00829A
2. Chengpeng Chen, Alexandra D. Townsend, Elisabeth A. Hayter, Hannah M. Birk*, Scott A. Sell and R. Scott Martin, Insert-based microfluidics for 3D cell culture with analysis, Analytical and bioanalytical chemistry, 2018, 410 (12), 3025-3035 **=undergraduate author*
3. Chengpeng Chen, Alexandra. D. Townsend, Scott. A. Sell and R. Scott Martin, Microchip-based 3D-cell culture using polymer nanofibers generated by solution blow spinning, Analytical Methods, **2017**, 9, 3274-3283. (Front cover story)

4. Kevin P. Feltz, Emily A. Growney Kalaf, Chengpeng Chen, R. Scott Martin and Scott A. Sell. A review of electrospinning manipulation techniques to direct fiber deposition and maximize pore size, Electrospinning, **2017**, 2, 16-31.
5. Ruipeng Mu , Chengpeng Chen , Yimeng Wang and Dana M. Spence, A quantitative, in vitro appraisal of experimental low-glucose storage solutions used for blood banking, Analytical Methods, **2016**, 8, 6856-6864.
6. Chengpeng Chen, Benjamin T. Mehl, Akash S. Munshi, Alexandra D. Townsend, Dana M. Spence and R. Scott Martin, 3D-printed microfluidic devices: fabrication, advantages and limitations—a mini review, Analytical Methods, **2016**, 8, 6005-6012.
7. Chengpeng Chen, Benjamin T. Mehl, Scott A. Sell and R. Scott Martin, Use of electrospinning and dynamic air focusing to create three-dimensional cell culture scaffolds in microfluidic devices, Analyst, **2016**, 141, 5311-5320.
8. Yueli Liu, Chengpeng Chen, Suzanne Summers, Wathsala Medawala and Dana M. Spence, C-peptide and zinc delivery to erythrocytes requires the presence of albumin: implications in diabetes explored with a 3D-printed fluidic device, Integrative Biology, **2015**, 7(5), 534-543. (Back cover story)
9. Chengpeng Chen , Yimeng Wang , Sarah Y. Lockwood and Dana M. Spence, 3D-printed fluidic devices enable quantitative evaluation of blood components in modified storage solutions for use in transfusion medicine, Analyst, **2014**, 139, 3219-3226. (Front cover story)
10. Bethany C. Gross, Jayda L. Erkal, Sarah Y. Lockwood, Chengpeng Chen, and Dana M. Spence, Evaluation of 3D Printing and Its Potential Impact on Biotechnology and the Chemical Sciences, Analytical Chemistry, **2014**, 86 (7), 3240–3253.

ii. Patent

1. R. Scott Martin, Chengpeng Chen, Scott A. Sell, patent application No. 62/324,073, “integration of three-dimensional cell culture scaffolds in microfluidic devices by direct fiber electrospinning”, filed on 04/2016.

SEMINAR AND PRESENTATION

i. Invited seminars

1. Chengpeng Chen and R. Scott Martin. 3D cell culture scaffolds in microfluidic devices. The department of biomedical engineering summer seminar series, St. Louis, 2017.
2. Chengpeng Chen, Scott A. Sell and R. Scott Martin. A microfluidic system integrated with fibrous scaffolds enables in vitro macrophage phenotype transition in a more *in vivo* representative way. The 2nd wound healing symposium, St. Louis, 2016.

ii. Selected conference presentations

1. Chengpeng Chen and R. Scott Martin. Use of Electrospinning and Dynamic Air Focusing to Create 3D Cell Culture Scaffolds in Fluidic Devices. Pittcon, Chicago, IL, 2017.

2. R. Scott Martin and Chengpeng Chen. Use of electrospinning and dynamic air focusing to directly create 3D scaffolds in microfluidic devices for cell culture with integrated analysis. μTAS, Dublin, Ireland, 2016.

3. Chengpeng Chen, R. Scott Martin and Dana M. Spence, 3D-printed Analytical Devices Facilitate Investigation of Stored RBCs. Pittcon, Atlanta, GA, 2016.

4. Chengpeng Chen and Dana M. Spence. 3D-printing: A Solution to Simple and Automated *in vitro* Bio-analysis. *The Society for Laboratory Automation and Screening (SLAS) 2015 4th annual conference*, Washington DC, 2015.

5. Chengpeng Chen and Dana M. Spence. Body System Communication *via* the Circulation on a 3D Printed Platform. *Pittcon,* New Orleans, LA, 2015.

6. Chengpeng Chen, Yimeng Wang and Dana M. Spence. Quantitative Evaluation of Stored Blood for Use in Transfusion Medicine with 3D-printed Fluidic Devices. *Pittcon*, Chicago, IL, 2014.

7. Chengpeng Chen and Dana M. Spence. 3D-printed Analytical Devices to Facilitate Studies in Transfusion Medicine. *Midwestern Symposium for Undergraduate Research*, East Lansing, MI, 2014.

8. Chengpeng Chen, Yimeng Wang and Dana M. Spence. 3-D Printed Devices to Evaluate a Modified RBC Storage Solution for Transfusion Medicine. *Midwestern University Analytical Chemistry Conference*, Notre Dame, IN, 2013.