## Wei Li

## **Current Position (2014-present)**

Assistant Professor Department of Chemical Engineering Texas Tech University, PO Box 43121, Lubbock, TX, 79409-3121 Phone: 806-834-2209 Email: wei.li@ttu.edu Web page: http://www.depts.ttu.edu/che/groups/ligroup/index.htm

# **EDUCATION**

- NSERC Postdoctoral Research Fellow, Department of Chemical Engineering, MIT, Advisor: Prof. Paula T. Hammond 2010- 2013
- **Doctor of Philosophy,** Department of Chemistry, University of Toronto, Canada. Advisor: Prof. Eugenia Kumacheva 2005–2010
- Master of Applied Science Department of Chemical Engineering, University of Toronto, Canada. Advisor: Prof. Yu-Ling Cheng 2003-2005
- Bachelor of Science Department of Chemistry, Wuhan University, China, 1995-1999

## AWARDS

- WCOE Whitacre Research Award (2017)
- NSERC Postdoctoral Fellowship (2010)
- Chinese Government Award for Outstanding Students Abroad (2009)
- Ontario Graduate Scholarships in Science and Technology (2008)
- Edwin Walter Warren Graduate Student Awards (2007, 2008)
- Xerox Research Centre of Canada Graduate Award (2007)
- Ontario Centers of Excellence Professional Outreach Award (2007)
- Graduate Travel Award, University of Toronto (2009)
- Open Fellowship, University of Toronto (2003-2007)
- Outstanding Graduate Student, Wuhan University, (2000-2002)

## **PUBLICATIONS**

**Researcher ID: P-3546-2016, h-index 20 with citation of 2600 by October. 2019** [Full list of publications: https://scholar.google.com/citations?user=E3XTpssAAAAJ&hl=en]

[Full list of publications: https://scholar.google.com/chations/user=E5A1pssAAAAJ&m=enj

## Publications from work at TTU(19 published, 1 submitted, 14 as corresponding author\*)

- 20. T. A. Al-Hilall, A. Keshavarz1, H. Kadry, B. Lahooti1, A. Al-Obaida1, Z. Ding, W Li, R. Kamm, I. F. McMurtry, T. Lahm, E. Nozik-Grayck, K. R. Stenmark, and F. Ahsan\* A microfluidic tissue chip recapitulating human pulmonary arterial hypertension: Fabrication, validation and application. (Submitted to Science Translational Medicine, aau8841).
- M. A. Hossain, N. Sattenapally, H. I. Parikh, W. Li, K. P. Rumbaugh, and N.A. German\*. Design, synthesis, and evaluation of compounds capable of reducing *Pseudomonas aeruginosa* virulence. European Journal of Medical Chemistry, 2019 (In press).
- J. Tan\*, Z. Ding, and W. Li\*. Circulating tumor cell transport, adhesion, and capture efficiency prediction in cell suspensions in microfluidic devices: a numerical and experimental study. Biomicrofluidics, 2019 (In press).
- 17. Y. Zhou, Z. Dong, H. Andarge, W. Li, and D. Pappas\*. Nanoparticle Modification of Microfluidic Cell Separation for Cancer Cells Detection and Isolation. **Analyst**, 2019 (In press).
- Z. Dong, N. Zhang, Y. Wang, J. Wu, Q. Gan,\* W. Li\*. Photo-Patternable Nanolayered Polymeric Films with Fast Tunable Color Responses Triggered by Humidity. Advanced Functional Materials, 2019, 29, 1904453.
- 15. D. Yu,<sup>#</sup> Z. Dong,<sup>#</sup> HT, Lim, Y. Chen, Z. Ding, N. Sultana, J. Wu, B. Qin, J. Chen,\* and W. Li\*. Microfluidic Preparation, Post Shrinkage, and Surface Modification of Monodispersed Alginate

Microbeads for 3D Cell Culture. RSC Advances, 2019, 9, 11101-11110.

- Z. Ding, Y. Zhang,\* Y. Xu, Y. Jiao, and W. Li\*. Hyperuniform flow fields resulting from hyperuniform configurations of circular disks. Physical Review E, 2018, 98, 063101.
- T. Hou, H. Zhang, D. He, Q. Liu, Z. Zhang, L. Xiao, W. Li, and M. Barnes. Enhanced Adsorption Behaviors of Co<sub>2+</sub> on Robust Chitosan Hydrogel Microspheres Derived from Alkali Solution System: Kinetics and Isotherm Analysis. RSC Advances, 2018, 8, 36858-36868.
- D. Yu, L. Tang, Z. Dong, K.A. Loftis, Z. Ding, J. Chen, B. Qin,\* J. T. Yan,\* and W. Li\*. Effective Reduction of Non-Specific Binding of Blood Cells in a Microfluidic Chip for Isolation of Rare Cancer Cells. Biomaterials Science, 2018, 2871-2880 (Inside front cover).
- Z. Dong, D. Yu, Q. Liu, Z. Ding, V. J. Lyons, R. K. Bright, D. Pappas, X. Liu, and W. Li\*. Enhanced Capture and Release of Circulating Tumor Cells Using Hollow Glass Microspheres with Nanostructured Surface. Nanoscale, 2018, 10, 16795-16804.
- Q. Liu, Z. Dong, Z. Ding, Z. Hu, D. Yu, Y. Hu, N. Abidi, and W. Li\*. Electroresponsive Homogeneous Polyelectrolyte Complex Hydrogels from Naturally Derived Polysaccharides. ACS Sustainable Chemistry & Engineering, 2018, 6, 7052-7063.
- 09. Y. Chen, L. Ramalingam, J. Wu, N. Moustaid-Moussa, W. Li\*. An Integrated Biomimetic Adipose Tissue Microchip. **The FASEB Journal**, 2017. 31(1 Supplement), 590-594.
- C. C. Ahrens, Z. Dong, and W. Li\*. Engineering Cell Aggregates through Incorporated Polymeric Microparticles. Acta Biomaterialia 2017,15,64-81.
- 07. D. K. Singh, C. C. Ahrens, W. Li, S. A. Vanapalli. Label-Free, High-Throughput Holographic Screening and Enumeration of Tumor Cells in Blood. Lab on a Chip 2017, 17, 2920-2932.
- 06. Z. Hu, C. Uzun, Z. Dong, W. Li, A. A. Bernussi and G. Kumar. Elastocapillary Bundling of High Aspect-Ratio Metallic Glass Nanowires. **Applied Physics Letters** 2017, 111, 023107.
- Z. Dong, C. C. Ahrens, D. Yu, Z. Ding, H. T. Lim, and W. Li\*. Cell Isolation and Recovery Using Hollow Glass Microspheres Coated with Nanolayered Films for Applications in Resource-Limited Settings. ACS Applied Materials & Interfaces 2017, 9, 15265-15273.
- 04. D. K. Singh, C. C. Ahrens, W. Li, S. A. Vanapalli. Label-free fingerprinting of tumor cells in bulk flow using inline digital holographic microscopy. **Biomedical Optics Express** 2017, *8*, 536-554.
- Z. Dong, L. Tang, C. C. Ahrens, V. Cao,<sup>‡</sup> Z. Ding, S. A. Castleberry, J. T. Yan,<sup>\*</sup> W. Li.<sup>\*</sup> A Benchtop Capillary Flow Layer-by-Layer (CF-LbL) Platform for Rapid Assembly and Screening of Biodegradable Nanolayered Films. Lap on a Chip 2016, 23, 4601-4611.
- N. Zhang, Z. Dong, D. Ji, H. Song, X. Zeng, Z. Liu, S. Jiang, A. Bernussi, W. Li,\* Q. Q. Gan.\* Tunable Coupled and Decoupled Super Absorbing Structures. Applied Physics Letters 2016, 108, 091105-091108.
- 01. Z. Wang, D. Voicu, L. Tang, W. Li,\* E. Kumacheva.\* Microfluidic Studies of Polymer Absorption in Flow. Lab on a Chip 2015, 15, 2110-2116.

#### Invited Book Chapters (Total 2)

- 02. X. Liu and W. Li. Nanomedicine and Nanoemulsion in Increasing the Availability of Antibiotics, Antibacterial Drug Discovery to combat MDR – Natural Compounds, Nanotechnology and Novel Synthetic Sources (In press, Springer 2019).
- 01. C. C. Ahrens, Z. Dong, W. Li. Microfluidic Devices for Isolation of Circulating Tumor Cells (CTCs), Microfluidics. Fundamental Devices and Applications (John Wiley & Sons. 2018).

#### <u>Patents or Invention Disclosures (Total 8)</u>

- 08 Z. Dong, W. Li. Patternable Humidity-sensitive multilayer nanofilm with fast color tuning properties (TTU invention disclosure 2019-103)
- 07 S. Shimul, W. Li. Electro-active polymer frames for 3D shape change (TTU invention disclosure 2019)
- 06. Z. Dong, W. Li. Rapid cell isolation and recovery using hollow glass microspheres coated with biodegradable nanostructured films (TTU invention disclosure D-1565, pending provisional)
- 05. Z. Dong, W. Li. Responsive Metamaterial for dynamic color change (TTU invention disclosure D-1474)
- W. Li, S. A. Castleberry, P. T. Hammond. Biodegradable LbL films for cell capture and release. (MIT Technology disclosure No. 15894)

- 03. W. Li, S. A. Castleberry, P. T. Hammond. Capillary flow layer-by-layer assembly of polyelectrolytes. (MIT Technology disclosure No. 15867, provisional 61/719,068, filed in Oct. 2012)
- 02. W. Li, S. A. Castleberry, P. T. Hammond. Automated capillary flow layer-by-layer systems (MIT Technology disclosure No. 15541, provisional 61/719,093, filed in Oct. 2012)
- 01. W. Li, J. Greener, E. Kumacheva, Photo-resist stamp for hot embossing. (Invention Disclosure No. 10001883, US patent filed on Feb. 3<sup>rd</sup>, 2010)

for hot embossing. (Invention Disclosure No. 10001883, US patent filed on Feb. 3rd, 2010)

## Sponsored Projects (Total amount of my share: \$832,642)

- Utilizing glycoside hydrolases to degrade biofilms in wounds. NIH R21. \$138,487, Feb. 2019-Jan. 2021, Subcontracted from Texas Tech University Health Science Center, PI Kendra Rumbaugh, Total amount \$285,612.
- Recapitulation of sex-disparity in PAH on a microfluidic device and elucidation of the differences and similarities in the development, progression and therapy of PAH in male versus female patients. NIH R01. \$194,156, Feb. 2019-Jan. 2023, Subcontracted from Texas Tech University Health Science Center, PI Fakhrul Ahsan, Total amount \$1,911,694.
- Isolation and in situ profiling of circulating tumor cell subpopulations using a hyperuniform structured microchip. Cancer Prevention and Research Institute of Texas (CPRIT) HI/HR Award. \$200,000, Nov. 2017-Feb. 2020. Sole PI.
- Integrated on-chip networks for investigating exosome-mediated drug expulsion, Cancer Prevention and Research Institute of Texas (CPRIT) HI/HR Award. \$120,000, June 2015-May 2017. PI 60%, Co-PI J. Kim 40% from MechE at TTU, Total amount \$200,000.
- New technology for ultra-high throughput enumeration of circulating tumor cells, Cancer Prevention and Research Institute of Texas (CPRIT) HI/HR Award. \$29,999, Sept. 2014-Aug. 2016. Collaborator 15%, PI S. Vanapalli from ChE at TTU, Total amount \$ 199,993.
- Supporting the Global Laboratory for Energy Asset Management & Microgrid, GLEAMM, TX Emerging Technology Fund. \$93,000, Jan 2017-Dec. 2020, Collaborator 3%, PI R. Duncan from Physics at TTU. Total amount \$3.1 M.
- Preliminary Assessment on Electro-Active Polymer Materials as Smart Components for Microgrid Systems. TTU GLEAMM Spark Funds. \$50,000, May 2018-Dec 2019. Sole PI.
- An integrated biomimetic human adipose tissue microchip. TTU Obesity Research Cluster Seed Funds. \$7000, July 2016-June 2017. PI 60% with Co-PIs N. Moustaïd-Moussa and L. Ramalingam from Nutritional Sci. at TTU, Total Amount \$10,500.

# **MENTORSHIP**

• Student Awards (3)

Ziye Dong, First place. AIChE 2018, 8B Biomaterials Session, Graduate Research Award.Ziye Dong, Biomedical Engineering Society (BMES) Graduate Student Design and Research Award.August 2017

Yuting Chen, Graduate/Postdoc Travel Award in ASBMB 2017, Jan. 2017

# • Current Lab Members (10)

# **Professional Service**

- Co-organizer, Texas Soft Matter Meeting, 2019
- American Institute of Chemical Engineer (AIChE) 2019 Annual Conference, co-chair, Biomaterials session, Orlando, FL, USA.
- American Institute of Chemical Engineer (AIChE) 2017 Annual Conference, co-chair, Biomimetic Materials session, Minneapolis, MN, USA
- Biomedical Engineering Society (BMES) 2017 Annual Conference, co-chair Cancer Micro/Nano Technology Session, Phoenix, AZ, USA.
- Biomedical Engineering Society (BMES) 2014 Annual Conference, chair, Microfluidic Platform Session II, Atlanta, GA, USA
- Biomedical Engineering Society (BMES) 2014 Annual Conference, chair, Microtechnologies for Cancer Session II, Atlanta, GA, USA