

Xing Xie

Personal Data & Contact

Post-Doctoral Scholar
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Education

2014 Ph. D., Civil and Environmental Engineering, Stanford University, CA, USA
Co-advised by Craig Criddle (Civil & Environ. Engr.) & Yi Cui (Materials Sci. & Engr.)
2012 M.S., Materials Science and Engineering, Stanford University, CA, USA
2008 M.S., Environmental Science and Engineering, Tsinghua University, Beijing, China
2006 B.S., Environmental Science and Engineering, Tsinghua University, Beijing, China

Awards & Honors

2014 Best Student Research Award, S. Calif. Chin. Amer. Environ. Protec. Assoc. (SCCAEPA)
2013 Student Award, Sustainable Nanotechnology Organization (SNO)
2012 Chinese Government Award for Outstanding Self-Financed Students Abroad
2012 Graduate Student Award in Environmental Chemistry, American Chemical Society
2011-2014 Stanford Interdisciplinary Graduate Fellowship (SIGF) – Henry Fan Fellowship
2009-2011 Stanford Graduate Fellowship (SGF) - David and Lucile Packard Foundation Fellowship
2008-2009 Stanford Engr. School / Civil & Environ. Engr. Fellowship - Larry C. K. Yung Fellowship
2008 Excellent Graduate, Tsinghua Univ.
2008 Excellent Master Thesis, Tsinghua Univ.
2005 Tsinghua University Scholarship - China Building Standard Design Scholarship
2004 Tsinghua University Scholarship - Excellent Academic Performance Scholarship
2003 Tsinghua University Scholarship - China Merchants Bank Scholarship

Journal Publications

- [32] **Xing Xie**, Janina Bahnemann, Siwen Wang, Yang Yang, Michael R. Hoffmann. “Nanofiltration” enabled by super-absorbent polymer beads for concentrating microorganisms in water samples. *Scientific Reports*, 2016, 6: 20516.
- [31] **Xing Xie**, Siwen Wang, Janina Bahnemann, Sunny C. Jiang, Michael R. Hoffmann. Sunlight-activated propidium monoazide (PMA) pretreatment for differentiation of viable and dead bacteria by quantitative real-time PCR. *Environmental Science & Technology Letters*, 2016, 3(2): 57-61.

- [30] **Xing Xie**, Craig S. Criddle, Yi Cui. Design and fabrication of bioelectrodes for microbial bioelectrochemical systems. *Energy & Environmental Science*, 2015, 8(12): 3418-3441. (Invited review)
- [29] **Xing Xie**[#], Meng Ye[#], Chong Liu, Po-Chun Hsu, Craig S. Criddle, Yi Cui. Use of low cost and easily regenerated Prussian Blue cathodes for efficient electrical energy recovery in a microbial battery. *Energy & Environmental Science*, 2015, 8(2): 546-551.
- [28] Po-Chun Hsu, Xiaoge Liu, Chong Liu, **Xing Xie**, Hye Ryoung Lee, Alex J. Welch, Tom Zhao, Yi Cui. Personal thermal management by metallic nanowire-coated textile. *Nano Letters*, 2015, 15(1): 365-371.
- [27] **Xing Xie**[#], Wenting Zhao[#], Hye Ryoung Lee, Chong Liu, Meng Ye, Wenjun Xie, Bianxiao Cui, Craig S. Criddle, Yi Cui. Enhancing the nanomaterial bio-interface by addition of mesoscale secondary features: crinkling of carbon nanotube films to create subcellular ridges. *ACS Nano*, 2014, 8(12): 11958-11965.
- [26] Chong Liu, **Xing Xie**, Wenting Zhao, Jie Yao, Desheng Kong, Alexandria B. Boehm, Yi Cui. Static electricity powered copper oxide nanowire microbicidal electroporation for water disinfection. *Nano Letters*, 2014, 14(10): 5603-5608.
- [25] Meng Ye, Mauro Pasta, **Xing Xie**, Yi Cui, Craig S. Criddle. Performance of a mixing entropy battery alternately flushed with wastewater effluent and seawater for recovery of salinity-gradient energy. *Energy & Environmental Science*, 2014, 7(7): 2295-2300.
- [24] **Xing Xie**, Meng Ye, Po-Chun Hsu, Nian Liu, Craig S. Criddle, Yi Cui. Microbial battery for efficient energy recovery. *PNAS*, 2013, 110(40): 15925-15930.
- [23] Mingliang Zhang[#], **Xing Xie**[#], Mary Tang, Craig S. Criddle, Yi Cui, Shan X. Wang. Magnetically ultra-responsive nanoscavengers for next-generation water purification systems. *Nature Communications*, 2013, 4: 1866.
- [22] Chong Liu, **Xing Xie**, Wenting Zhao, Nian Liu, Peter A. Maraccini, Lauren M. Sassoubre, Alexandria B. Boehm, Yi Cui. Conducting nanosponge electroporation for affordable and high-efficiency disinfection of bacteria and viruses in water. *Nano Letters*, 2013, 13(9): 4288-4293.
- [21] Guihua Yu, **Xing Xie**, Lijia Pan, Zhenan Bao, Yi Cui. Hybrid nanostructured materials for high-performance electrochemical capacitors. *Nano Energy*, 2013, 2(2): 213-234. (Invited review)
- [20] **Xing Xie**, Guihua Yu, Nian Liu, Zhenan Bao, Craig S. Criddle, Yi Cui. Graphene-sponges as high-performance low-cost anodes for microbial fuel cells. *Energy & Environmental Science*, 2012, 5(5): 6862-6866.
- [19] **Xing Xie**, Meng Ye, Liangbing Hu, Nian Liu, James R. McDonough, Wei Chen, Husam N. Alshareef, Craig S. Criddle, Yi Cui. Carbon nanotube-coated macroporous sponge for microbial fuel cell electrodes. *Energy & Environmental Science*, 2012, 5(1): 5265-5270.
- [18] **Xing Xie**, Liangbing Hu, Mauro Pasta, George F. Wells, De-Sheng Kong, Craig S. Criddle, Yi Cui. Three-dimensional carbon nanotube-textile anode for high-performance microbial fuel cells. *Nano Letters*, 2011, 11(1): 291-296.
- [17] **Xing Xie**, Mauro Pasta, Liangbing Hu, Yuan Yang, James R. McDonough, Judy Cha, Craig S. Criddle, Yi Cui. Nano-structured textiles as high-performance aqueous cathodes for microbial fuel cells. *Energy & Environmental Science*, 2011, 4(4): 1293-1297.
- [16] Liangbing Hu, Wei Chen, **Xing Xie**, Nian Liu, Yuan Yang, Hui Wu, Yan Yao, Mauro Pasta, Husam N. Alshareef, Yi Cui. Symmetrical MnO₂-carbon nanotube-textile nanostructures for wearable pseudocapacitors with high mass loading. *ACS Nano*, 2011, 5(11): 8904-8913.

- [15] Wei Chen, R. B. Rakhi, Liangbing Hu, **Xing Xie**, Yi Cui, Husam N. Alshareef. High-performance nanostructured supercapacitors on a sponge. *Nano Letters*, 2011, 11(12): 5165-5172.
- [14] Liangbing Hu, Fabio La Mantia, Hui Wu, **Xing Xie**, James R. McDonough, Mauro Pasta, Yi Cui. Lithium-ion textile batteries with large areal mass loading. *Advanced Energy Materials*, 2011, 1(6): 1012-1017.
- [13] Guangyuan Zheng, Liangbing Hu, Hui Wu, **Xing Xie**, Yi Cui. Paper supercapacitors by a solvent-free drawing method. *Energy & Environmental Science*, 2011, 4(9): 3368-3373.
- [12] Guihua Yu, Liangbing Hu, Michael Vosgueritchian, Huiliang Wang, **Xing Xie**, James R. McDonough, Xu Cui, Yi Cui, Zhenan Bao. Solution-processed graphene/MnO₂ nanostructured textiles for high-performance electrochemical capacitors. *Nano Letters*, 2011, 11(7): 2905-2911.
- [11] Liangbing Hu, Hui Wu, Yifang Gao, Anyuan Cao, Hongbian Li, James R. McDough, **Xing Xie**, Min Zhou, Yi Cui. Silicon-carbon nanotube coaxial sponge as Li-ion anodes with high areal capacity. *Advanced Energy Materials*, 2011, 1(4): 523-527.
- [10] Chaoyang Fu, **Xing Xie**, Jingjing Huang, Tong Zhang, Qianyuan Wu, Jining Chen, Hongying Hu. Monitoring and evaluation of removal of pathogens at municipal wastewater treatment plants. *Water Science & Technology*, 2010, 61(6): 1589-1599.
- [9] Xin Zhao, Hongying Hu, **Xing Xie**, Qianyuan Wu, Jing-Jing Huang. Method of establishing biological standards for reclaimed water based on health risk assessment. *Water & Wastewater Engineering*, 2010, 36(5): 43-48. (In Chinese)
- [8] **Xing Xie**, Hongying Hu, Meiting Guo, Qianyuan Wu. Assessment method of the pathogenic microbial exposure caused by aerosolization of reclaimed water. *Environmental Science*, 2009, 30(1): 65-69. (In Chinese)
- [7] Yu Hong, Hongying Hu, **Xing Xie**, Akiyoshi Sakoda, Masaki Sagehashi, Fengmin Li. Gramine-induced growth inhibition, oxidative damage and antioxidant responses in freshwater cyanobacterium *Microcystis aeruginosa*. *Aquatic Toxicology*, 2009, 91(3): 262-269.
- [6] **Xing Xie**, Tong Zhang, Hongying Hu, Zusheng Zong. Correlation between pathogenic protozoan and fecal coliform in sewage reclamation treatment system. *China Water & Wastewater*, 2008, 24(13): 34-36. (In Chinese)
- [5] Tong Zhang, **Xing Xie**, Hongying Hu, Yudong Song, Qianyuan Wu, Zusheng Zong. Improvement of detection method of *Cryptosporidium* and *Giardia* in reclaimed water. *Frontiers of Environmental Science & Engineering*, 2008, 2(3): 380-384.
- [4] Yu Hong, Hongying Hu, **Xing Xie**. Responses of enzymatic antioxidants and non-enzymatic antioxidants in the cyanobacterium *Microcystis aeruginosa* to allelochemical ethyl 2-methyl acetoacetate (EMA) isolated from reed (*Phragmites communis*). *Journal of Plant Physiology*, 2008, 165(12):1264-1273.
- [3] Tong Zhang, Hongying Hu, **Xing Xie**, Zusheng Zong. Removal characteristic and mechanism of *Cryptosporidium* and *Giardia* from secondary effluent in flocculation process. *Environmental Science*, 2008, 29(8): 212-215. (In Chinese)
- [2] Tong Zhang, Hongying Hu, Zusheng Zong, **Xing Xie**. Removal characteristic of pathogenic protozoan in wastewater treatment and reclamation process. *Environmental Science*, 2008, 29(7): 207-212. (In Chinese)
- [1] **Xing Xie**, Hongying Hu. Formation and influence of organic chloramines during wastewater chlorination. *China Water & Wastewater*, 2007, 23(24): 20-23. (In Chinese)

(# Equal contribution; * Corresponding author)

Book Chapters

- [1] Chong Liu, **Xing Xie**, Yi Cui. Antimicrobial nanomaterials for water disinfection. *Nano-Antimicrobials - Progress and Prospects*. Edited by Nicola Cioffi, Mahendra Rai. Springer, 2012.

Patent Applications

- [1] Xing Xie, Craig S. Criddle, Yi Cui, Meng Ye. Microbial batteries with re-oxidizable solid-state electrodes for conversion of chemical potential energy into electrical Energy. US Patent 9509028.
- [2] Brian J. Cantwell, Craig S. Criddle, Kevin Lohner, Yaniv D. Scherson, George F. Wells, Koshlan Mayer-Blackwell, Xing Xie. Microbial production of nitrous oxide coupled with chemical reaction of gaseous nitrous oxide. US Patent 8932848.
- [3] Xing Xie, Liangbing Hu, Yi Cui, Craig S. Criddle. Three dimensional electrodes useful for microbial fuel cells. US Patent Application No. 13/070,158.
- [4] Shan X. Wang, Mingliang Zhang, Craig S. Criddle, Xing Xie. Magnetically separable synthetic nanoparticles for water treatment. US Patent Application No. 14/032,033.
- [5] Meng Ye, Mauro Pasta, Xing Xie, Craig S. Criddle, Yi Cui. Charge-free mixing entropy battery. US Patent Application No. 62/163,280.
- [6] Xing Xie, Michael R. Hoffmann. A Sample concentration method based on superabsorbent polymer beads. Patent Application No. CIT-7231-P.

Presentations

- [1] Novel materials and devices for sustainable and reliable water and energy. *University of California, Irvine*, Mar. 2016, Irvine, CA, USA. (Invited talk)
- [2] Novel materials and devices for sustainable and reliable water and energy. *Massachusetts Institute of Technology*, Mar. 2016, Boston, MA, USA. (Invited talk)
- [3] Novel materials and devices for sustainable and reliable water and energy. *University of Utah*, Mar. 2016, Salt Lake City, UT, USA. (Invited talk)
- [4] Novel materials and devices for sustainable and reliable water and energy. *University of Houston*, Mar. 2016, Houston, TX, USA. (Invited talk)
- [5] Concentrating microorganisms in water samples by super-absorbent polymer (SAP) beads for microbial detection. *The 251st American Chemical Society National Meeting*, Mar. 2016, San Diego, CA, USA. (Oral)
- [6] Novel materials and devices for sustainable and reliable water and energy. *Georgia Tech*, Feb. 2016, Atlanta, GA, USA. (Invited talk)
- [7] Novel materials and devices for sustainable and reliable water and energy. *Louisiana State University*, Feb. 2016, Baton Rouge, LA, USA. (Invited talk)
- [8] Novel materials and devices for sustainable and reliable water and energy. *Northwestern University*, Feb. 2016, Evanston, IL, USA. (Invited talk)
- [9] Novel materials and devices for sustainable and reliable water and energy. *Washington University in St. Louis*, Feb. 2016, St. Louis, MO, USA. (Invited talk)

- [10] Novel materials for harnessing microorganisms: cultivation, inactivation, and detection. *Georgia Tech*, Nov. 2015, Atlanta, GA, USA. (Invited talk)
- [11] Rational design of electrodes in electrochemical energy devices. *The 4th Sustainable Nanotechnology Organization Conference*, Nov. 2015, Portland, OR, USA. (Invited talk)
- [12] SAP-enabled “nanofiltration” for concentrating microorganisms in water samples. *The 4th Sustainable Nanotechnology Organization Conference*, Nov. 2015, Portland, OR, USA. (Poster)
- [13] Microbial batteries for energy recovery from wastewater. *Southern California Chinese American Environmental Protection Association (SCCAEPA) - Los Angeles Environmental Forum*, Aug. 2014, Los Angeles, CA, USA. (Invited talk)
- [14] Advanced materials and nanotechnology for energy, water, and environmental applications. *Joint BioEnergy Institute*, May. 2014, Emeryville, CA, USA. (Invited talk)
- [15] Advanced materials and nanotechnology for energy, water, and environmental applications. *Harvard University*, Apr. 2014, Boston, MA, USA. (Invited talk)
- [16] Microbial electrochemical cells for energy recovery: from electrode development to configuration design. *Materials Research Society Spring Meeting*, Apr. 2014, San Francisco, CA, USA. (Oral)
- [17] Advanced materials and nanotechnology for environmental applications. *Rice University*, Feb. 2014, Houston, TX, USA. (Invited talk)
- [18] Advanced materials and nanotechnology for environmental applications. *University of Southern California*, Feb. 2014, Los Angeles, CA, USA. (Invited talk)
- [19] Nano-enhanced microbial electrochemical cells. *The 2nd Sustainable Nanotechnology Organization Conference*, Nov. 2013, Santa Barbara, CA, USA. (Oral)
- [20] Environmental nanotechnology: from microbial fuel cells to water disinfection. *International Conference on Sustainability and Environmental Protection*, Oct. 2013, San Francisco, CA, USA. (Oral)
- [21] Waste to energy by microbial batteries. *Association of Environmental Engineering and Science Professors (AEESP) 50th Anniversary Conference*, Jul. 2013, Denver, CO, USA. (Poster)
- [22] Environmental nanotechnology: from microbial electrochemical cells to water purification. *University of California, Berkeley*, Jun. 2013, Berkeley, CA, USA. (Invited talk)
- [23] Environmental nanotechnology: from microbial fuel cells to water disinfection. *Gordon Research Conference: Environmental Nanotechnology*, Jun. 2013, Stowe, VT, USA. (Poster)
- [24] Three-dimensional electrodes for bioelectrochemical systems. *The 243rd American Chemical Society National Meeting*, Mar. 2012, San Diego, CA, USA. (Oral)
- [25] Highly conductive textile electrodes for microbial fuel cells. *The 239th American Chemical Society National Meeting*, Mar. 2010, San Francisco, CA, USA. (Poster)

Teaching/working experience

6/15-8/15	Research Mentor for undergraduate student, Caltech
4/14-5/14	Visiting scholar, Oak Ridge National Laboratory
1/13-4/14	Research Mentor for master student, Stanford
8/13-9/13	Poster Section Organizer, “Environmental & Water Studies” 50th Reunion, Stanford
6/13-8/13	Teaching Assistant, “Environmental Science and Technology”, Stanford
5/13	Guest lecturer, “Nanoscale Science, Engineering, and Technology”, Stanford
7/12-6/13	Organizing committee for Environ. Engr. & Sci. seminars, Stanford

1/12-8/12 Research Mentor for master student, Stanford
4/12-6/12 Teaching Assistant, “Environmental Nanotechnology”, Stanford
1/11-8/11 Research Mentor for master student, Stanford
2/08-7/08 Teaching Assistant, “Environmental Microbiology”, Tsinghua
7/05-1/06 Intern, Guohuan Tsinghua Environ. Engr. Design & Research Institute, Beijing

Professional activities

Memberships: American Chemical Society; Association of Environmental Engineering and Science Professors; American Society of Civil Engineers; Sustainable Nanotechnology Organization; Association of Chinese-American Professors in Environmental Engineering & Science; Chinese American Environmental Professionals Association; Chinese Environmental Scholars & Professionals Network

Journal Reviewer: Energy & Environmental Science; Nano Letters; Journal of the American Chemical Society; Environmental Science & Technology; ACS Nano; Journal of Materials Chemistry; Nano Energy; Water Research; Physical Chemistry Chemical Physics; PLOS ONE; RSC Advances; Electrochimica Acta; Bioresource Technology; Sensors; Applied Microbiology and Biotechnology; Journal of Vacuum Science & Technology; Frontiers of Environmental Science & Engineering; Environmental Science: Water Research & Technology