

Curriculum Vitae  
**WEILE YAN**

Civil and Environmental Engineering  
 Texas Tech University  
 Lubbock, TX 79409

Email: [weile.yan@ttu.edu](mailto:weile.yan@ttu.edu) | Phone: (806)834-3478 | Fax: (806)742-3449

<b>EDUCATION</b>	<i>Lehigh University, PA, United States</i>	<i>2011</i>
	Ph.D., Environmental Engineering	
	<i>Singapore-MIT Alliance, Singapore</i>	<i>2003</i>
	M.S., Molecular Engineering of Biological and Chemical Systems	
	<i>National University of Singapore, Singapore</i>	<i>2002</i>
	B.Eng., Chemical and Environmental Engineering, 1 <sup>st</sup> class honors	

**RESEARCH INTERESTS**

**Iron nanoparticles:** applications to environmental contaminant sequestration, surface chemistry and surface-mediated interactions, long-term nanoparticle reactivity, fate and transport

**General:** interactions of iron or iron oxides in biogeochemical systems, catalysis materials for environmental remediation, cycling and fate of heavy metals in aquatic environment

**ACADEMIC EXPERIENCE**

Assistant Professor	<i>2011.9-</i>
<i>Texas Tech University, Civil and Environmental Engineering</i>	<i>present</i>
Post-doctoral Research Associate	
<i>Princeton University, Chemical and Biological Engineering</i>	<i>2011</i>
Advisor: Dr. Bruce Koel	
Graduate Research Assistant	<i>2006-2011</i>
<i>Lehigh University, Civil and Environmental Engineering</i>	
Advisor: Dr. Wei-xian Zhang, Dr. Chris Kiely (co-advisor, Material Science and Engineering)	

**INDUSTRIAL EXPERIENCE**

Corporate Environmental Compliance Engineer	<i>2005-2006</i>
<i>Creative Technology Asia, Singapore</i>	
Process Engineer	<i>2003-2005</i>
<i>Tech Semiconductor, Singapore</i>	

**HONORS AND AWARDS**

Rossin Doctoral Fellow, Lehigh University	<i>2008-2011</i>
Dean's Fellowship, Lehigh University	<i>2006-2007</i>
Graduate Fellowship, Singapore - MIT Alliance	<i>2002-2003</i>
Overseas Undergraduate Scholarship, Ministry of Education, Singapore	<i>1998-2002</i>

---

**PROFESSIONAL AFFILIATIONS**

- American Chemical Society (ACS) Environmental Chemistry Division
- American Society of Civil Engineers (ASCE)
- Association of Environmental Engineering and Science Professors (AEESP)
- International Water Association (IWA)

---

**TEACHING EXPERIENCE**

Courses taught at *Texas Tech University*

- ENVE4315/5315 Environmental Chemistry for Pollution Management
- CE5395 Solid and Hazardous Waste Management
- ENVE1100 Environmental Engineering Seminar

---

**PROFESSIONAL SERVICE**

*As journal reviewer*

- Environmental: *Environmental Science & Technology; Environmental Engineering Science; Environmental Science: Processes and Impacts; Journal of Hazardous Materials; Water, Air & Soil Pollution; Clean - Soil, Air, Water; Bioresource Technology; Frontier of Environmental Science and Engineering*
- Materials-general: *Chemcomm; ACS Applied Materials and Interfaces; RSC Advances; Nanoscale*

*As proposal reviewer*

- NSF CBET Environmental Engineering

---

**RESEARCH GRANTS**

1. TxDOT Snow and Ice, 02/2012 – 08/2013, \$231,000 (co-PI, 10%).
2. NSF CHE-1308726 , "Reactions at iron-enriched mineral interfaces and implications for catalytic oxidation of aqueous contaminants", 10/2013-9/2016, \$390,000 (PI, 50%).

---

**PUBLICATIONS** (\*corresponding author, <sup>G</sup> graduate student, <sup>UG</sup> undergraduate student)**Peer-Reviewed Journals**

1. Han, Y. L.<sup>G</sup>; Yan, W. L.\* Bimetallic Iron Nanoparticles for Groundwater Decontamination: Effect of Groundwater Constituents on Surface Deactivation. *Water Research*, in press.
2. Chung, S. H.; Wu, P. F.; Kao, Y. L.; Yan, W. L.; Lien, H. L. Nanoscale Zero-Valent Iron for Sulfide Removal from Digested Piggery Wastewater. *Journal of Nanomaterials*, 2014, article ID 518242. <http://dx.doi.org/10.1155/2014/518242>.
3. Li S. L.; Wang, W.; Yan, W. L.; Zhang, W. X. Nanoscale Zero-Valent Iron (nZVI) for Treatment of Concentrated Cu(II) Wastewater: A Field Demonstration. *Environmental Science: Processes and Impacts*, 2013, 16 (3), 524. <http://dx.doi.org/10.1039/C3EM00578J>
4. Xiang, A. S.; Yan, W. L.; Koel, B. E.; Jaffe, P. R. Poly(acrylic acid) coating induced 2-line ferrihydrite nanoparticle transport in saturated porous media. *Journal of Nanoparticle Research*, 2013, 15 (7), 1705. <http://dx.doi.org/10.1007/s11051-013-1705-3>
5. Yan, W. L.\*; Lien, H. L.; Koel, B. E.; Zhang, W. X. Iron nanoparticles for environmental clean-up: Recent developments and future outlook. *Environmental Science: Processes and Impacts*, 2013, 15 (1), 63-67.

- <http://dx.doi.org/10.1039/c2em30691c>
6. Yan, W. L.; Vasic, R.; Frenkel, A.; Koel, B. E. Intra-particle reduction of arsenite (As(III)) by nanoscale zerovalent iron (nZVI) investigated with *in situ* X-ray absorption spectroscopy. *Environmental Science & Technology*, 2012, 46, 7018-7026.  
<http://dx.doi.org/10.1021/es2039695>
  7. Yan, W. L.; Ramos, M. A. V.; Koel, B. E.; Zhang, W. X. As(III) Sequestration by Iron Nanoparticles: Study of Solid-phase Redox Transformations with X-ray Photoelectron Spectroscopy. *Journal of Physical Chemistry C*, 2012, 116, 5303-5311.  
<http://dx.doi.org/10.1021/jp208600n>
  8. Yan, W.; Herzing, A. A.; Kiely, C. J.; Zhang, W. X. Nanoscale zero-valent iron (nZVI): Aspects of the Nanoparticle Structure and Reactions with Inorganic Species in Water. *Journal of Contaminant Hydrology*, 2010, 118, 96-104.  
<http://dx.doi.org/10.1016/j.jconhyd.2010.09.003>
  9. Yan, W. L.; Ramos, M. A. V.; Koel, B. E.; Zhang, W. X. Multi-tiered distributions of arsenic in iron nanoparticles: observation of dual redox functionality enabled by a core-shell structure. *Chemical Communications*, 2010, 46, 6995-6997.  
<http://dx.doi.org/10.1039/C0CC02311F>
  10. Yan, W. L.; Herzing, A. A.; Li, X. Q.; Kiely, C. J.; Zhang, W. X. Structural evolution of Pd-doped nanoscale zero-valent Iron (nZVI) in aqueous media and implications for particle aging and reactivity. *Environmental Science & Technology*, 2010, 44, 4288-4294.  
<http://dx.doi.org/10.1021/es100051q>
  11. Li, S. L.; Yan, W. L.; Zhang, W. X.; Solvent-free production of nanoscale zero-valent iron (nZVI) with precision milling. *Green Chemistry*, 2009, 11, 1618-1626.  
<http://dx.doi.org/10.1039/B913056J>
  12. Ramos, M. A. V.; Yan, W. L.; Li, X. Q.; Koel, B. E.; Zhang, W. X., Simultaneous Oxidation and Reduction of Arsenic by Zero-Valent Iron Nanoparticles: Understanding the Significance of the Core-Shell Structure. *Journal of Physical Chemistry C* 2009, 113, 14591-14594.  
<http://dx.doi.org/10.1021/jp9051837>
  13. Martin, J. E.; Herzing, A. A.; Yan, W. L.; Li, X.; Koel, B. E.; Kiely, C. J.; Zhang, W. X. Determination of the Oxide Thickness in Core-Shell Zero-Valent Iron nanoparticles. *Langmuir*, 2008, 24, 4329-4334.  
<http://dx.doi.org/10.1021/la703689k>
  14. Yan, W. L.; Bai, R.B. Adsorption of Lead and Humic acid on Chitosan Hydrogel Beads. *Water Research*, 2005, 39, 688-698.  
<http://dx.doi.org/10.1016/j.watres.2004.11.007>

---

**CONFERENCE PRESENTATIONS** (\*presenter, <sup>G</sup> graduate student, <sup>UG</sup> undergraduate student)

1. Li, Y.<sup>G</sup>; Yan, W. L.\*. Interactions of TiO<sub>2</sub> Nanoparticles with Aquatic Media – Enhanced Dark and Photo-induced Catalytic Activity due to Surface Enrichment of Fe(III) Species (poster). 248<sup>th</sup> American Chemical Society National Meeting, Aug 10-14, 2014, San Francisco, CA.
2. Han, Y. L.<sup>G</sup>; Yan, W. L.\*; Zhang, W. X. Promise and Pitfalls of Catalyzed Zero-valent Iron Nanoparticles – Mechanistic Investigations into Material Deactivation and an Alternative Path Forward. 248<sup>th</sup> American Chemical Society National Meeting, Aug 10-14, 2014, San Francisco, CA.
3. Li, Y.\*<sup>G</sup>; Yan, W. L. Surface chemistry of iron-impregnated mineral oxides and catalytic activity for oxidation of aqueous contaminants (poster). International Conference on Environmental Science and Technology, Jun 9-13, 2014, Houston, TX.
4. Li, Y.<sup>G</sup>; Sasidharan, S.; Yan, W. L.\*; Ridley, M. K. Connecting Surface Chemistry and Redox Activity of Iron-Impregnated Mineral Oxides. Goldschmidt2014, Jun 8-13, Sacramento, CA.
5. Bland, G.\*<sup>UG</sup>; Li, Y.; Yan, W. L. Removal of arsenite in drinking water sources via oxidative coagulation (poster). TTU Undergraduate Research Conference, Apr 16 2014, Lubbock, TX.
6. Robertson, M.\*<sup>UG</sup>; Li, Y.; Yan, W. L. Iron-impregnated mineral particles – An aqueous adsorption study (poster). TTU Undergraduate Research Conference, Apr 15, 2014, Lubbock, TX.
7. Han, Y. L.\*; Yan, W. L. Nickel-iron bimetallic nanoparticles for groundwater remediation: Nature of catalytic sites and deactivation mechanisms by groundwater constituents. 246<sup>th</sup> American Chemical Society National Meeting, Sep 8-12, 2013, Indianapolis, IN.

8. Yan, W. L.\*; Li, Y.; Ridley, M. K. Iron-enriched mineral oxides: A class of sustainable oxygenation catalysts for water decontamination. 246<sup>th</sup> American Chemical Society National Meeting, Sep 8-12, 2013, Indianapolis, IN.
9. Yang, D. Y.\*<sup>UG</sup>; Han, Y. L.; Yan, W. L. Nanoscale Zero-Valent Iron (nZVI) for Environmental Cleanup: Optimizing Synthesis Conditions through Reactivity Assessment (poster). TTU Undergraduate Research Conference, Apr 24, 2013, Lubbock, TX.
10. Han, Y. L.\*; Yan, W. L. In situ groundwater remediation with iron-based bimetallic nanoparticles (poster). 22<sup>nd</sup> annual conference of the Society of Environmental Journalist, Oct 17-21, 2012, Lubbock, TX.
11. Yan, W. L.\*; Vasic, R.; Frenkel, A.; Koel, B. E. Investigation of intra-particle contaminant transformations in nanoscale zero-valent iron with in situ X-ray absorption spectroscopy (XAS). 243<sup>rd</sup> American Chemical Society National Meeting, Mar 25-29, 2012, San Diego, CA.
12. Yan, W. L.\*; Herzing, A. A.; Kiely, C. J.; Zhang, W. X. Structural transformation of Pd/Fe bimetallic nanoparticles in water and implications for particle reactivity. 243<sup>rd</sup> American Chemical Society National Meeting, Mar 25-29, 2012, San Diego, CA.
13. Yan, W. L.\*; Ramos, M. A. V.; Koel, B. E.; Zhang, W. X. Core-shell structure of nanoscale zero-valent iron (nZVI): Multi-faceted reactivity for As(III) sequestration (poster). Gordon Research Conference - Environmental Nanotechnology, May 29 - June 3, 2011, Waterville Valley, New Hampshire.
14. Yan, W. L.\*; Ramos, M. A. V.; Koel, B. E.; Zhang, W. X. Spectroscopic Investigations of Arsenic Redox Transformations by Nanoscale Zero-Valent Iron (nZVI). 240<sup>th</sup> American Chemical Society National Meeting, Aug 22-26, 2010, Boston, MA.
15. Yan, W. L.\*; Li, X. Q.; Martin, J. E.; Herzing, A. A.; Koel, B. E.; Kiely, C. J.; Zhang, W. X. The core-shell structure of zero-valent iron nanoparticles (nZVI): Applications in contaminant sequestration. 238<sup>th</sup> American Chemical Society National Meeting, Aug, 2009, Washing D.C.
16. Yan, W. L.\*; Ramos, M. A. V.; Koel, B. E.; Zhang, W. X. Nanoscale zero-valent iron (nZVI): Characterizations and environmental and energy applications (poster). Pennsylvania Infrastructure Technology Alliance Open House, May 2009, Bethlehem, PA.
17. Ramos, M. A. V.\*; Yan, W. L.; Martin, J. E.; Herzing, A. A.; Koel, B. E.; Kiely, C. J.; Zhang, W. X. Determination of the oxide layer thickness in core-shell zero-valent iron nanoparticles. Gordon Research Conference - Chemical Reactions at Surfaces, Feb 8-13, 2009, New Hampshire.
18. Yan, W. L.\*; Li, X. Q.; Zhang, W. X. Nanoscale zerovalent iron (nZVI): The core-shell structure and reactions with heavy metal ions. International Environmental Nanotechnology Conference, Oct 6-9, 2008, Chicago, IL.