

Hao Tang, Ph.D.

Born 1984

School of Science, Engineering, and Technology
The Pennsylvania State University
777 West Harrisburg Pike
123 Science and Technology Building
Middletown, PA 17057
Telephone: (717) 902-9518
Fax: (717) 948-6580
Email: tang@psu.edu
Website: <http://tangus.net>

EDUCATION

The Pennsylvania State University, Ph.D. in Environmental Engineering, 08/2011
Department of Civil and Environmental Engineering, University Park, PA, USA

The Pennsylvania State University, M.S. in Environmental Engineering, 12/2008
Department of Civil and Environmental Engineering, University Park, PA, USA

Hunan University, B.S. in Water and Wastewater Engineering, 06/2004
Department of Civil Engineering, Changsha, Hunan province, China

RESEARCH INTERESTS AND EXPERTISE

Formation and control of disinfection by-products in drinking water
Transformation and fate of emerging contaminants in natural and engineered environment
Physical, chemical, and biological water and wastewater treatment processes
Water and wastewater filtration using crumb rubber media
Water and wastewater disinfection
Membrane bioreactor for drinking water treatment
Environmental chemistry and analysis
Environmental modeling

HONORS AND AWARDS

Pennsylvania Water Environment Association Research Award, 2010
American Water Works Association Pennsylvania Annual Conference Second Place Poster Award, 2010
Pennsylvania Water Environment Association Research Award, 2006

American Water Works Association Pennsylvania Annual Conference Second Place Poster Award, 2006

Hunan University Speech Competition Third Place, 2003

Hunan University Scholarship, 2001-2004

PROFESSIONAL POSITIONS

- 08/11 - Research Scholar, School of Science, Engineering, and Technology, The Pennsylvania State University
- 01/05 - 08/11 Research Assistant, Department of Civil and Environmental Engineering, The Pennsylvania State University
- 05/11 - 06/11 Visiting Scholar, Department of Civil and Environmental Engineering, University of Massachusetts at Amherst
- 08/08 - 12/08 Co-Instructor of “*Environmental Chemistry and Analysis*”, School of Science, Engineering, and Technology, The Pennsylvania State University
- 05/04 - 06/04 Design Engineer (Intern), Water Supply and Sewage Group, Hunan Building Materials Co. Ltd. (China)

PROFESSIONAL REGISTRATIONS

Engineer in Training (since 2012), State of New Hampshire Joint Board of Licensure and Certification

Microsoft Certified Systems Engineer and Database Administrator (since 2003), Reg. No. 2917178

MEMBERSHIPS

American Water Works Association

American Society of Civil Engineers

Water Environment Federation

Association of Environmental Engineering and Science Professors

Pennsylvania Water Environment Association

Chinese-American Professors in Environmental Engineering and Science

PROFESSIONAL ACTIVITIES

Reviewer for papers submitted for publication to:

Frontiers of Environmental Science and Engineering
International Journal of Urban Design
Journal of Environmental Engineering and Technology
Water SA

Judge for The Pennsylvania State University Graduate Exhibition (2007 -)

Webmaster of the following professional organizations:

Chinese-American Professors in Environmental Engineering and Science (2007 -)

The Pennsylvania State University Environmental Training Center, (2007-2008)

The Pennsylvania State University Environmental Engineering Society (2005)

PUBLICATIONS AND PRESENTATIONS

Journal Articles & Conference Proceedings Papers:

1. Tang, H., Chen, Y-C. and Xie, Y.F. Use of bio-additives for pretreatment of wastewater containing fat, oil, and grease (FOG). (In preparation)
2. Tang, H., Regan J.M., Chen, Y-C. and Xie, Y.F. Contribution of biological treatment processes to disinfection byproduct precursors in wastewater. (In preparation)
3. Tang, H. and Xie, Y.F. Effects of materials of human origin on disinfection byproduct formation in swimming pool water. *Water Research*. (Submitted)
4. Tang, H., Chen, Y-C., Regan J.M. and Xie, Y.F. 2012. Disinfection by-product formation potentials in wastewater effluents and their reductions in a wastewater treatment plant. *Journal of Environmental Monitoring*. (In Press). DOI: 10.1039/C2EM00015F
5. Tang, H., Regan, J.M., Clark, S.E. and Xie, Y.F. 2011. Prediction of clean-bed head loss in crumb rubber filters. *Journal of Environmental Engineering*. 137(1): 55-62.
6. Tang, H., Regan, J.M., Chen, Y.-C. and Xie, Y.F. 2011. Impact of wastewater treatment processes on disinfection byproduct formation potential in treated wastewater. In: *Proceedings of American Water Works Association 130th Annual Conference*, Washington, DC.
7. Tang, H., Chen, Y-C. and Xie, Y.F. 2011. Quantification of disinfection by-product formation potential in wastewater. In: *Proceedings of International Water Association Micropol & Ecohazard Conference*, Sydney, Australia.

8. Tang, H. and Xie, Y.F. 2010. Tertiary wastewater denitrification by crumb rubber filtration (Extended Abstract). *Keystone Water Quality Manager*, Oct-Dec: 54.
9. Tang, H. 2008. Development and calibration of a conceptual activated sludge based MBR model for wastewater treatment. In: *Proceedings of College of Engineering Research Symposium*, State College, PA.
10. Tang, H. 2008. Optimization of a rainfall-runoff model to analyze the impact of forest cutting on watershed response. In: *Proceedings of College of Engineering Research Symposium*, State College, PA.
11. Tang, H., Regan, J.M. and Xie, Y.F. 2007. DBP precursors removal by membrane bioreactors. In: *Proceedings of College of Engineering Research Symposium*, State College, PA.
12. Tang, H. and Xie, Y.F. 2006. Membrane bioreactor technology for wastewater reuse (Extended Abstract). *Keystone Water Quality Manager*, Oct-Dec, 34.

Theses:

1. Tang, H. 2011. Disinfection byproduct precursors from wastewater organics: formation potential and influence of biological treatment processes. Ph.D. Dissertation. The Pennsylvania State University, University Park.
2. Tang, H. 2008. Prediction of clean-bed head loss in crumb rubber filters, M.S. Thesis. The Pennsylvania State University, University Park.

Proposals:

1. Disinfection byproduct precursors from soluble microbial products. (PI: Chen, Y.-C., Co-Investigator: Tang, H.), \$49,289, Water Environment Research Foundation Unsolicited Research Program, Submitted but not funded (2011).
2. Crumb rubber filter for the biological denitrification of wastewater. (PI: Xie, Y.F., Co-PI: Tang, H.), \$60,000, The Pennsylvania Water Resources Research Center, 2008-09 Water Resources Research Projects, Submitted but not funded (2009).
3. A green wastewater treatment process for biological denitrification: Crumb rubber filtration. (PI: Xie, Y.F., Co-Investigator: Tang, H.), \$104,747, National Science Foundation CBET – Environmental sustainability, Submitted but not funded (2008).

Research Reports:

1. Tang, H., Chen, Y-C. and Xie, Y.F. 2012. Use of bio-additives for pretreatment of wastewater containing fat, oil, and grease (FOG). Final report for The Pennsylvania State University Office of Physical Plant.
2. Tang, H., Chen, H. and Chen. Y-C. 2011. Nitrification bench inhibition test protocol. Final report for AECOM, Inc.
3. Tang, H., Chen, Y-C. and Xie, Y.F. 2011. Wastewater pretreatment ordinance for The Pennsylvania State University - University Park campus. Final report for The Pennsylvania State University Office of Physical Plant.
4. Tang, H. and Xie, Y.F. 2010. Tertiary wastewater denitrification by crumb rubber filtration. Final report for The Pennsylvania State University Office of Physical Plant.
5. Tang, H. and Xie, Y.F. 2009. The relationship among DBP precursors, dissolved organic matter, and soluble microbial products in wastewater. Final report for The Pennsylvania State University Office of Physical Plant.
6. Tang, H., Kumar, D. and Xie, Y.F. 2008. An investigation into campus water consumption by urinals and toilets. Final report for The Pennsylvania State University Office of Physical Plant.
7. Tang, H. 2007. Membrane bioreactor process for disinfection byproduct precursor removal. Fact Sheet for U.S. Environmental Protection Agency Small Public Water Systems Technology Assistance Center.
8. Tang, H. and Xie, Y.F. 2006. Membrane bioreactor technology for wastewater reuse. Final report for The Pennsylvania State University Office of Physical Plant.

Presentations:

1. Tang, H. 2011. Impact of wastewater treatment processes on disinfection byproduct formation potential in treated wastewater. American Water Works Association 130th Annual Conference & Exposition, Washington, DC.
2. Tang, H. 2010. Tertiary wastewater denitrification by crumb rubber filtration. 82th PENNTEC Annual Technical Conference & Exhibition, State College, PA.
3. Tang, H. 2010. Effects of wastewater treatment processes on DBP precursors. American Water Works Association Pennsylvania 62th Annual Conference, Lancaster, PA.

4. Tang, H. 2009. Application of crumb rubber filtration in tertiary wastewater treatment. The Pennsylvania State University Wastewater Management Committee (WWMC), University Park, PA.
5. Tang, H. 2008. Development and calibration of a conceptual activated sludge based MBR model for wastewater treatment. College of Engineering Research Symposium, State College, PA.
6. Tang, H. 2008. HAA removal from swimming pool water using a rapid BAC filter. American Water Works Association Pennsylvania 60th Annual Conference, King of Prussia, PA.
7. Tang, H. 2007. Membrane bioreactor process for DBP precursor removal. The Pennsylvania State University Graduate Exhibition, University Park, PA.
8. Tang, H. 2007. DBP precursors removal by membrane bioreactors. College of Engineering Research Symposium, State College, PA.
9. Tang, H. 2006. Investigation of DBP precursor removal by membrane bioreactors. American Water Works Association Pennsylvania 58th Annual Conference, Hershey, PA.
10. Tang, H. 2006. Clean-bed head loss during filtration using crumb rubber as a filter medium. The Pennsylvania State University Graduate Exhibition, University Park, PA.
11. Tang, H. 2006. Membrane bioreactor technology for wastewater reuse. 78th PENNTEC Annual Technical Conference & Exhibition, State College, PA.
12. Tang, H. 2006. Membrane bioreactor process using primary effluent as feed. The Pennsylvania State University Wastewater Management Committee (WWMC), University Park, PA.
13. Tang, H. 2006. Head loss study during crumb rubber filtration. The Pennsylvania State University Environmental Engineering Kappe Seminar, University Park, PA.

SHORT COURSES

1. CE 579, Environmental Pollution Microbiology, Sp 12.
2. ENVE 425, Hazardous Waste Management, Sp 12.
3. BISC 003, Environmental Science, Sp 12.

4. ENVE 413W, Operation and Control of Treatment Systems, Fa 10, Fa 11.
5. ENVE 594, Research Topics, Sp 10.
6. CHEM 301, Environmental Chemistry and Analysis, Fa 08.
7. CE 571, Physical Chemical Processes, Sp 08.

STUDENT RESEARCH PROJECTS SUPERVISED

1. William Hesse (Fa 11-) Properties influencing removal of fat, oil, and grease from wastewater
2. Luke Powell (Fa 11-) Biological removal of fat, oil, and grease from wastewater
3. Christopher Varnell (Fa 11) Wastewater nitrification inhibition studies
4. Nicholas Rossi (Sp 11) Effect of marcellus shale gas drilling water discharge on trihalomethane formation. M.S. Thesis, The Pennsylvania State University.
5. Trisha Krens (Sp 09) Crumb rubber filtration for tertiary denitrification

RESEARCH PROJECTS PARTICIPATED OUTSIDE PENN STATE

1. Ethan Brooke (Sp 08 - Su 09), University of New Hampshire. Posttreatment aeration to reduce THMs. (Work published in *J. Am. Wat. Works Assoc.*, 103(10), 84-96, 2011) (I performed THM analyses for this project)
2. Kevin Frank (Fa 07), AECOM, Inc. The development and application of a wastewater process simulation model for the University Park Wastewater Treatment Plant. (I performed sample acquisition and data analyses for this project)

CONSULTING EXPERIENCE

AECOM, Inc.

PERSONAL

Born 27 June 1984, Anren, Hunan province, China.
Married, two children (6 and 4).

Languages:

English, Mandarin, Japanese (elementary)

Computer Skills:

MS Office, AutoCAD, ArcGIS, Archibus/FM, Matlab, Biowin, GPS-X, Minitab, SigmaPlot, PHP, MySQL, HTML, Visual Basic, C/C++ , Fortran

Hobbies:

Digital and film photography (Portfolio <http://www.tangus.org/photography>)