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EDUCATION

Ph.D.	University of North Carolina at Chapel Hill Gillings School of Global Public Health Environmental Sciences and Engineering	2018
M.S.	Chinese Academy of Sciences Research Center for Eco-Environmental Sciences Environmental Science	2014
B.S.	Jilin University Environmental Science	2011

PUBLICATIONS

1. **Tian, Z.**, Zhao, H., Peter, K.T., Gonzalez, M., Wetzel, J., Wu, C., Hu, X., Prat, J., Mudrock, E., Hettinger, R., Cortina, A. E., Biswas, R.G., Kock, F.V.C., Soong, R., Jenne, A., Du, B., Hou, F., He, H., Lundeen, R., Gabreath, A., Sutton, R., Scholz, N.L., Davis, J., Dodd, M.C., Simpson, A., McIntyre, J.K., Kolodziej, E.P.* (2020). Ubiquitous Tire Rubber-Derived Chemical Induces Acute Mortality in Coho Salmon. *Science*, in press, DOI: 10.1126/science.abd6951
2. Du, B.* , **Tian, Z.**, Peter, K.T., Kolodziej, E.P., Wong, C.S. (2020). Identification of Unique Non-Target High Resolution Mass Spectrometry Signatures to Track Contaminant Sources in Urban Waters. *Environmental Science & Technology Letters*, in press, DOI: 10.1021/acs.estlett.0c00749
3. Peter, K.T. *, Hou, F., **Tian, Z.**, Wu, C., Goehring, M., Liu, F., & Kolodziej, E.P. (2020). More Than a First Flush: Urban Creek Storm Hydrographs Demonstrate Broad Contaminant Pollutographs. *Environmental Science & Technology*, 54 (10), 6152–6165.
4. **Tian, Z.***, Peter, K.T., Gipe A.D., Zhao H., Hou F., Wark D.A., Kolodziej E.P., James C.A.* (2019). Suspect and non-target screening for contaminants of emerging concern in an urban estuary. *Environmental Science & Technology*, 54 (2), 889-901.
5. Vila, J.* , **Tian, Z.**, Wang, H., Bodnar, W., & Aitken, M.D. (2019). Isomer-selective biodegradation of high-molecular-weight azaarenes in PAH-contaminated environmental samples. *Science of the Total Environment*, 707, 135503.
6. Peter, K.T.* , Wu, C., **Tian, Z.**, Kolodziej, E.P. (2019). Application of Non-Target High Resolution Mass Spectrometry Data to Quantitative Source Apportionment. *Environmental Science & Technology*, 53 (21), 12257-12268.
7. Hou, F., **Tian, Z.**, Peter, K.T., Wu, C., Gipe A.D., Zhao, H., Alegria, E., Liu, F., Kolodziej E.P.* (2019). Quantification of organic contaminants in urban stormwater by isotope dilution and liquid chromatography-tandem mass spectrometry. *Analytical and Bioanalytical Chemistry*, 411 (29), 7791-7806.

8. Han, P., Yu, Y., Zhou, L., **Tian, Z.**, Li, Z., Hou, L., Liu, M., Wu, Q., Wagner, M., Men, Y.* (2019). Specific micropollutant biotransformation pattern by the comammox bacterium *Nitrospira inopinata*. *Environmental Science & Technology*, 53 (15), 8695-8705.
9. Peter, K.T.*, Herzog, S., **Tian, Z.**, Wu, C., McCray, J., Lynch, K., Kolodziej, E.P. (2019). Evaluating Emerging Organic Contaminant Removal in an Engineered Hyporheic Zone using High Resolution Mass Spectrometry. *Water Research*, 150, 140-152.
10. Peter, K.T.*, **Tian, Z.**, Wu, C., Lin, P., White, S., McIntyre, J.K., Scholz, N.L., & Kolodziej, E.P. (2018). Using High-Resolution Mass Spectrometry to Identify Organic Contaminants Linked to Urban Stormwater Mortality Syndrome in Coho Salmon. *Environmental Science & Technology*, 52 (18), 10317–10327.
11. **Tian, Z.**, Vila J.*, Yu M., Bodnar, W., & Aitken, M.D. (2018). Tracing the biotransformation of polycyclic aromatic compounds in contaminated soil by stable isotope-assisted metabolomics. *Environmental Science & Technology Letters*, 5 (2), 103–109
12. **Tian, Z.**, Vila J., Wang, H., Bodnar, W., & Aitken, M.D.* (2017). Diversity and abundance of high-molecular-weight azaarenes in PAH-contaminated environmental samples. *Environmental Science & Technology*, 51 (24), 14047–14054.
13. **Tian, Z.**, Gold, A., Nakamura, J., Zhang, Z., Vila, J., Singleton, D.R., Collins, L.B. & Aitken, M. D.* (2017). Non-target analysis reveals a bacterial metabolite of pyrene implicated in the genotoxicity of contaminated soil after bioremediation. *Environmental Science & Technology*, 51 (12), 7091–7100.
14. Han, Y., Liu, W.*, Pan, W., Wang, P., **Tian, Z.**, Zhao, Y., & Zheng, M. (2015). Formation Pathways of Mono-to Octa-Chlorinated Dibenzo-*p*-dioxins and Dibenzofurans in Main Organochemical Industries. *Environmental Science & Technology* 49(18), 10945-10950
15. **Tian, Z.**, Li, H., Xie, H., Tang, C., Han, Y., & Liu, W.* (2014). Concentration and distribution of PCNs in ambient soil of a municipal solid waste incinerator. *Science of the Total Environment*, 491, 75-79.
16. **Tian, Z.**, Li, H., Xie, H., Tang, C., Han, Y., Wang, M., & Liu, W.* (2014). Polychlorinated dibenzo-*p*-dioxins and dibenzofurans and polychlorinated biphenyls in surface soil from the Tibetan Plateau. *Journal of Environmental Sciences*, 26(10), 2041-2047.
17. Xie, H., Li, J., Zhang, C., **Tian, Z.**, Liu, X., Tang, C., & Liu, W.* (2014). Assessment of heavy metal contents in surface soil in the Lhasa–Shigatse–Nam Co area of the Tibetan Plateau, China. *Bulletin of Environmental Contamination and Toxicology*, 93(2), 192-198.
18. Liu, W.*, **Tian, Z.**, Li, H., Xie, H., Xiao, K., Li, C., Tang, C., & Zheng, M. (2013). Mono-to octa-chlorinated PCDD/Fs in stack gas from typical waste incinerators and their implications on emission. *Environmental Science & Technology*, 47(17), 9774-9780.
19. Liu, W.*, Li, H., Tao, F., Li, S., **Tian, Z.**, & Xie, H. (2013). Formation and contamination of PCDD/Fs, PCBs, PeCBz, HxCBz and polychlorophenols in the production of 2, 4-D products. *Chemosphere*, 92(3), 304-308.
20. Liu, W.*, Li, H., **Tian, Z.**, Xie, H., & Hu, J. (2013). Spatial distribution of polychlorinated biphenyls in soil around a municipal solid waste incinerator. *Journal of Environmental Sciences*, 25(8), 1636-1642.
21. Liu, W.*, Li, H., **Tian, Z.**, Xie, H., & Li, C. (2013). Spatial distribution of polychlorinated dibenzo-*p*-dioxins and polychlorinated dibenzofurans in soil around a municipal solid waste

incinerator. *Environmental Geochemistry and Health*, 35(5), 605-611.

Publications in preparation

1. **Tian, Z.**, Wark D. A., James C.A. Suspect and non-target screening of contaminants of emerging concern in streams of agricultural watersheds.
2. **Tian Z.**, Peter K.T., Leonard B.D., Wu, C., Du, B., McIntyre J.K., Kolodziej E.P. Evaluating the removal of stormwater contaminants in compost amended bioswales: Part 2- target and non-target analysis of organic contaminants.

PRESENTATION AND POSTERS

1. **Tian Z.** Ubiquitous Tire Rubber-Derived Chemical Induces Acute Mortality in Coho Salmon. Nov. 2020, SETAC North America 41st Annual Meeting (**Oral presentation, virtual**).
2. **Tian Z.** Suspect and Non-Target Screening for Organic Contaminants in Marine Water and Stormwater. Jan. 2020, Water Seminar, Department of Civil & Environmental Engineering, University of Washington, Seattle, WA. (**Invited talk**)
3. **Tian Z.**, Peter K.T., Gipe A.D., Hou F., Kolodziej E.P., James C.A. Suspect and Non-Target Screening for Contaminants of Emerging Concern in Puget Sound. Oct. 2019, Environmental Assessment Program Seminar, WA Department of Ecology, Olympia, WA. (**Invited talk**)
4. **Tian Z.**, Peter K.T., Gipe A.D., Wark D.W., Zhao H., Hou F., James C.A., Kolodziej. E.P. Suspect and Non-Target Screening of Organic Pollutants in Marine Water and Stormwater. Aug. 2019, 258th ACS National Meeting, San Diego, CA. (**Oral presentation**)
5. **Tian Z.**, Peter K.T., Wu C., Hou F., Kolodziej E.P., James C.A. Suspect and Non-Target Screening for Contaminants of Emerging Concern in Puget Sound. Apr. 2019, Salmon Recovery Conference, Tacoma, WA. (**Oral presentation**)
6. **Tian, Z.**, Peter, K.T., Hou, F., James, C.A., Kolodziej, E.P. Suspect and Non-Target Screening of Organic Pollutants in Marine Water and Stormwater. Mar. 2019, PittCon, Philadelphia, PA. (**Invited talk**)
7. **Tian, Z.** What's in our water? Non-target screening of organic pollutants in water environments. Oct. 2018, Clovers Park Rotary Club, Lakewood, WA. (**Invited talk**)
8. **Tian, Z.**, Peter, K.T., Du, B., Kolodziej, E.P., James, C.A.*, Retention time prediction models using ENTACT standards and machine learning algorithms. ENTACT workshop, Aug. 2018, US EPA at Research Triangle Park, NC. (**poster**)
9. **Tian, Z.** Non-target screening of organic pollutants in soil and water. Jul. 2018. RCEES, Chinese Academy of Sciences, Beijing (**Invited talk**)
10. **Tian, Z.**, Vila J., Yu M., Bodnar, W., & Aitken, M. D. Tracing the biotransformation of polycyclic aromatic compounds in contaminated soil by stable isotope-assisted metabolomics. 255th ACS National Meeting, Mar. 2018, New Orleans, LA. (**Oral presentation**)
11. **Tian, Z.** & Aitken, M. D. Non-target analysis of bioremediated soil. Nov. 2017. US EPA at Research Triangle Park, NC. (**Invited talk**)
12. **Tian, Z.** & Aitken, M. D. Non-target analysis of bioremediated soil. Sept. 2017. Department of Geosciences, Princeton University. (**Invited talk**)
13. **Tian, Z.**, Gold, A., Zhang, Z., Nakamura, J., Vila, J., Singleton, D., Collins, L., & Aitken, M.D. Non-targeted analysis reveals a novel bacterial metabolite of pyrene implicated in

genotoxicity of bioremediated soil. 253rd ACS National Meeting, Apr. 2017, San Francisco, CA. (**Oral presentation**)

14. **Tian, Z.**, Adrion, A., Zhang, Z., Gold, A., & Aitken, M.D. Towards identifying unknown genotoxic compounds in bioremediated soil using metabolomics-like methods and effect-directed analysis. NIEHS SRP Annual Meeting, Nov. 2015, San Juan, Puerto Rico. (**Poster**)
15. **Tian, Z.**, Liu, W. Distribution and Comparison of Mono- to Tri-Chlorinated PCDD/Fs in Stack Gas from Different Waste Incinerators. Dioxin 2013, Aug. 2013, Daegu, Korea. (**Oral Presentation**)

RESEARCH EXPERTISE

- Instrumental analysis: GC-qMS, GC-QqQ, HRGC-HRMS (sector), HPLC-FLD, HPLC-QqQ, HPLC-qTOF, Q-Exactive HF (Orbitrap)
- HRMS data analysis and metabolomics: XCMS, Mass Profiler Professional, MZmine, enviMass, MetFrag, SIRIUS, MSnBase, mzR,
- Data-oriented programming: R, python, C
- Environmental sampling: soil, surface water, stormwater, flue gas, fish tissue
- Environmental sample processing and method development: column chromatography and fractionation, solid phase extraction (SPE), QuEChERS, accelerated solvent extraction (ASE), Soxhlet extraction
- Toxicology and microbiology: *in vitro* bioassay, cell culture, bioremediation, microcosm

HONORS AND AWARDS

ACS ENVR Graduate Student Award, 2018
ACS ENVR Certificate of Merit, 2017
Graduate School Traveling Award, UNC-Chapel Hill, 2016
Prof. Baozhen Wang Scholarship for Environmental Innovations, 2014
First Class Scholarship of Chinese Academy of Science, 2013
Second Class Scholarship of Chinese Academy of Science, 2012
Second Class Award, 2010 CSTD Competition (academic competition for undergraduates)
Second Class Scholarship of Jilin University, 2007-2008, 2008-2009

MENTORING EXPERIENCE

2013 Chen Tang (M.S.)
2016 Zhe Wang (M.S.)
2017 Elisa Rehak (M.S.E.E.)
2018 David Wark (B.S.), Diana Vedenova (B.S.)
2019 Melissa Gonzalez (B.S.), Allan Cortina (B.S.), Rachel Hettinger (B.S.)
2020 Craig Rideout (B.S.), Ximin Hu (Ph.D.)

JOURNAL AND GRANT REVIEW

Environmental Science & Technology

Environmental International

Science of the Total Environment

Environmental Pollution

Journal of Hazardous Materials

Environmental Sciences Europe

Environmental Science: Process and Impact

Chemosphere

Journal of Agricultural and Food Chemistry

Journal of Environmental Sciences

Canadian Journal of Chemistry

PeerJ

EPA Science to Achieve Results (STAR) Program, ad hoc reviewer.

RESEARCH INTERESTS

Environmental chemistry; Emerging contaminants; Non-target screening; Metabolomics; Bioremediation; Advanced mass spectrometry; Effect-directed analysis; Environmental exposure; Exposomics; Aquatic chemistry; Wastewater-based epidemiology.

MEDIA LINKS

Tire toxicant paper

New York Times:

<https://www.nytimes.com/2020/12/03/climate/salmon-kill-washington.html>

Seattle Times:

<https://www.seattletimes.com/seattle-news/environment/tire-dust-is-killing-salmon/>

CNN:

<https://www.cnn.com/2020/12/03/us/microplastics-tire-rubber-chemicals-killing-coho-salmon-scn/index.html>

The Guardian:

<https://www.theguardian.com/environment/2020/dec/03/coho-salmon-pollution-car-tires-die-off>

Marine water paper

UW News:

<https://www.washington.edu/news/2020/01/22/puget-sound-technique-casts-net-for-concerning-chemicals/>

King 5 TV (local television channel):

<https://www.king5.com/article/news/local/whats-in-puget-sound/281-c122de89-af35-41a6-a47a-42f7345b6389>