

Po-Yen (Kevin) Wang, Ph.D., E.I.T.
Department of Civil Engineering, Widener University
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I. EDUCATION

1. Ph.D. in Civil Engineering, University of Delaware, December 2015

Dissertation: Removal of perchlorate from dilute aqueous solutions: synthesis, characterization and testing of perchlorate selective and permselective membranes and bimetallic catalysts.

2. M.S. in Civil Engineering, University of Delaware, May 2015

Thesis: Determination of perchlorate in soil and air samples during fireworks displays in Taiwan and USA.

3. M.S. in Nuclear Science, National Tsing Hua University, July 2004

Thesis: Determination of ammonium ion and amines in the photolysis of Cu(II)-amino acid complexes in aqueous solution.

4. B.S. in Environmental Science, Tunghai University, June 2002

Thesis: Determination of total mercury (Hg) in soil samples by graphite furnace atomic absorption spectrophotometry (GFAAS) using 2,3-dimercaptopropane-1-sulfonate as a complexing agent.

II. WORK / RESEARCH EXPERIENCE

- 1. Associate Teaching Professor**, Widener University, Aug 2023 – Present
- 2. Assistant Teaching Professor**, Widener University, Aug 2019 – July 2023
- 3. Visiting Assistant Professor**, Widener University, Aug 2016 – July 2019
- 4. Adjunct Assistant Professor**, University of Delaware, Aug 2016 – Dec 2016
- 5. Adjunct Instructor**, Widener University, Jan 2015 – Aug 2016
- 6. Lab Instructor**, University of Delaware, Sept 2015 – Dec 2015
- 7. Graduate Research Assistant**, University of Delaware, Sept 2007 – Sept 2015
- 8. Entrepreneur**, Spin In program at the University of Delaware, Sept 2014 - May 2015
- 9. Mentor**, Clean Tech Competition, Feb 2014 - May 2014
- 10. Teaching Assistant**, University of Delaware, 2011 – 2012
- 11. Mentor**, High School Research Internships Program, University of Delaware, 2011
- 12. Environmental Health and Safety Committee** in Department of Civil and Environmental Engineering, University of Delaware, 2009 - 2012

III. RESEARCH INTERESTS

1. Water Quality Analysis.
2. Sensor Technologies for on-line monitoring of the emerging contaminant.
3. Sustainable technologies for drinking water purification and wastewater treatment.

IV. TEACHING

1. Here are the undergraduate courses I have taught,
 - (1) Water and Wastewater Treatment
 - (2) Environmental Impact Assessment
 - (3) Hydraulics and Hydrology
 - (4) Fluid Mechanics
 - (5) Water Resources and Environmental Engineering Laboratory
 - (6) Senior Project (serve as a team advisor)

2. The graduate courses I have taught;
 - (1) Groundwater Pollution Remediation
 - (2) Advanced Water and Wastewater Treatment Technologies

V. REGISTRATION

1. State of California, E.I.T. (No. 169580)

VI. PATENTS

1. P.Y. Wang and C.P. Huang, "A Perchlorate Ion Permselective Membrane." Publication number: WO2016040067 A1.

VII. GRANTS

1. X. Tang (PI), P.Y. Wang (Co-PI), D. Saha (Co-PI) and X. Song (Co-PI) 2018. "Developing a Low Cost Wireless Device for Real Time Monitoring of Lead Levels in Drinking Water". EPA P3. \$14,935. 11/01/2018-10/31/2019.
2. X. Tang (PI), P.Y. Wang (Co-PI) and D. Saha (Co-PI) 2023. "Developing Geopolymer Cement using Sewage Sludge Ash as Precursors". EPA P3. *Under review.*

VIII. SERVICES

1. EPA grant proposal peer reviewer.
2. Reviewer for peer reviewed journals:
 - (1) Journal of Hazardous Materials
 - (2) Journal of Analytical and Applied Pyrolysis
 - (3) The Journal of Solid Waste Technology and Management
 - (4) Environmental Science & Technology
 - (5) Chemical Engineering Journal
3. Member (2017- 2021) and Chair (2018-2020) of Academic Review Committee in School of Engineering, Widener University.
4. Member (2021-now) and Chair (2021-2022) of Faculty Affairs Committee in School of Engineering, Widener University.

5. Served as the SOE library committee on Faculty Council Library Committees (academic year 2022 - now)

IX. PUBLICATIONS

1. C. J. Lin, P. Y. Wang, Y. L. Lin, S. T. Chang, C. S. Hsu, S. P. Wu, C. H. Wu, **2021**. "Nonpolar Side Chains Affect the Photochemical Redox Reactions of Copper(II)–Amino Acid Complexes in Aqueous Solutions" *ACS Omega*, (42), 28194-28202.
2. S. Y. Pan, C. D. Dong, J. F. Su, P. Y. Wang, C. W. Chen, J. S. Chang, H. Kim, C. P. Huang, C. M. Hung, **2021**. "The Role of Biochar in Regulating the Carbon, Phosphorus, and Nitrogen Cycles Exemplified by Soil Systems" *Sustainability*, 13, 5612-5646.
3. Y. H. Yu, J. F. Su, Y. Shih, J. Wang, P.Y. Wang, C.P. Huang, **2020**. "Hazardous Wastes Treatment Technologies" *Water Environment Research* 00, 1-28.
4. P.Y. Wang, C. L. Chen, C. P. Huang, **2019**. "Catalytic Electrochemical Reduction of Perchlorate over Rh-Cu/SS and Rh-Ru/SS Electrodes in Dilute Aqueous Solution" *Journal of Environmental Engineering*, 145, (8), 04019046.
5. J. Wang, Y. Shih, P.Y. Wang, Y. H. Yu, J. F. Su, C.P. Huang, **2019**. "Hazardous Waste Treatment Technologies" *Water Environment Research* 91, (10), 1177-1198.
6. X. Tang, P.Y. Wang, G. Buchter, **2018**. " Ion-Selective Electrodes for Detection of Lead (II) in Drinking Water: A Mini-Review", *Environments* 5, (9), 95-108.
7. J. Wang, P.Y. Wang, Y. H. Yu, J. F. Su, C.P. Huang, **2018**. "Hazardous Waste Treatment Technologies" *Water Environment Research* 90, (10), 1679-1719
8. M. Li, P.Y. Wang, Y. H. Yu, C.P. Huang, **2017**. "Hazardous Waste Treatment Technologies" *Water Environment Research* 89, (26), 1461-1486.
9. Y. C. Lee, P. Y. Wang, S. L. Lo, C.P. Huang, **2017**. "Recovery of perfluorooctane sulfonate (PFOS) and perfluorooctanoate (PFOA) from dilute water solution by foam flotation" *Separation and Purification Technology* 173, 280-285.
10. P.Y. Wang, M. Li, C.P. Huang, **2016**. "Hazardous Waste Treatment Technologies" *Water Environment Research* 88, (10), 1467-1486.
11. P.Y. Wang, S.I. Shah, C.P. Huang, **2015**. "Functionalization of poly(vinyl chloride) membranes with quaternary ammonium salts for the selective separation of perchlorate from water" *Journal of Membrane Science* 476, 561-570.
12. C.J. Lin, C.S. Hsu, P.Y. Wang, Y.L. Lin, Y.S. Lo, C.H. Wu, **2014**. "Photochemical Redox Reactions of Copper(II)–Alanine Complexes in Aqueous Solutions" *Inorganic Chemistry* 53, (10), 4934-4943.
13. P.Y. Wang, S.I. Shah, C.P. Huang, **2013**. "A polymeric membrane electrode for the detection of perchlorate in water at the sub-micro-molar level" *Analytical Methods* 5, (14), 3530-3537.
14. Y.P. Peng, Y.T. Yeh, P.Y. Wang, C.P. Huang, **2013**. "A solar cell driven electrochemical process for the concurrent reduction of carbon dioxide and degradation of azo dye in dilute KHCO₃ electrolyte" *Separation and Purification Technology* 117, (0), 3-11.
15. T.Y. Lin, Y.T. Pan, H.Y. Lee, P.Y. Wang, C.H. Wu, **2012**. "Markedly Enhanced Purge-and-Trap Performance and Efficiency for the Determination of Ammonium Ion in High-Salinity Water Samples" *Journal of the Chinese Chemical Society* 59, (6), 718-726.
16. Y.L. Lin, P.Y. Wang, L.L. Hsieh, K.H. Ku, Y.T. Yeh, C.H. Wu, **2009**. "Determination of linear aliphatic aldehydes in heavy metal containing waters by high-performance liquid chromatography using 2,4-dinitrophenylhydrazine derivatization" *Journal of Chromatography A* 1216, (36), 6377-6381.
17. M.T. Hsu, S.R. Yang, H.C. Cheng, Y.J. Shen, F.Y. Lin, C.H. Weng, P.Y. Wang, K.J. Chen, M.S. Kuo,

- 2009.** "Measurement of Total Mercury in Sediments by Graphite Furnace Atomic Absorption Spectrophotometry Using 2,3-Dimercaptopropane-1-sulfonate as a Complexing Agent" *Tunghai Science* 11, 15-37.
18. P.Y. Wang, J.Y. Wu, H.J. Chen, T.Y. Lin, C.H. Wu, **2008.** "Purge-and-trap ion chromatography for the determination of trace ammonium ion in high-salinity water samples" *Journal of Chromatography A* 1188, (2), 69-74.
19. C.T. Kuo, P.Y. Wang, C.H. Wu, **2005.** "Fluorometric determination of ammonium ion by ion chromatography using postcolumn derivatization with o-phthaldialdehyde" *Journal of Chromatography A* 1085, (1), 91-97.

X. ADVISEES DIRECTED

1. Jordan Delestre, MS, May 2021. "Investigating Polymeric Ion-Selective Electrode Membranes for Quantification of Lead Solution Concentration Levels."
2. Senior Project for academic year 2019-2020: Civil Engineering, project title: Stormwater Powered Emergency Energy Device (SPEED) (Team members: Jordan Delestre, Edward Harsch, Brinn Hindermeyer, Graham Jespersen, Casey Strohl, Stephen Toner)
3. Senior Project for academic year 2017-2018: Civil Engineering, project title: Utilization of organic Wastes as Coagulants for removal of colloidal particles from Water (Team members: Megan. Bleidorn, Madeline Mayes, Samantha Shaw, Tiffanie Thornton)
4. Senior Project for academic year 2017-2018: Civil Engineering, project title: Natural Adsorbents for Removal of Organic Materials from Water (Team members: Gabrielle Buchter, Justin Gross, Ian Nordfors, Alia Robinson)
5. Gabrielle Buchter, MS, May 2019. "Developing an Ion-Selective Electrode Membrane for Lead Level Detection in Drinking Water."

XI. PRESENTATIONS

1. P.Y. Wang, S.I. Shah and C.P. Huang. "Separation and Reduction of Low Concentration of Perchlorate Ion in Water by Integrated Electrodialysis and Catalytic Electrochemical Reaction", *Mid-Atlantic Regional Water Conference*, September **2014**, Shepherdstown, West Virginia
2. P.Y. Wang, S.I. Shah and C.P. Huang. "Catalytic Electrochemical Process as A Sustainable Technology for the Removal of Nitrate from Water", *Tri-Association Conference*, August **2013**, Ocean City, Maryland
3. P.Y. Wang, S.I. Shah, and C.P. Huang. "Separation of Low Concentration of Perchlorate Ion in Water by Perchlorate Permselective Membrane with Electrodialysis", *2nd AWWA/AMTA Membrane Conference & Exposition*, February **2013**, San Antonio, Texas
4. P.Y. Wang, S.I. Shah, and C.P. Huang. "Permselective Separation of Perchlorate Ion at Low Concentrations from Water using Membrane with Electrodialysis", *2nd DENIN Research Symposium*, January **2012**, Newark, Delaware
5. P.Y. Wang "Introduction and Demonstration of Water Purification Technology", *Annual state sponsored teacher in-service for high school teacher professional development*, October, **2011**, Newark, Delaware
6. P.Y. Wang and C.P. Huang. "Removal of Perchlorate at Low Concentrations from Water using Perchlorate-Selective Membrane", *Tri-Association Conference*, August **2011**, Ocean City, Maryland

7. P.Y. Wang, S.I. Shah, and C.P. Huang. "Separation of Perchlorate Ion at Low Concentrations from Water by Perchlorate Selective Membrane", *DENIN External Advisory Board meeting*, November **2010**, Newark, Delaware
8. P.Y. Wang and C.P. Huang. "Determination of Aqueous Perchlorate Ion by Membrane Electrode", *Charter School of Wilmington students visiting DENIN / EPSCoR*, April **2010**, Newark, Delaware