

## Publications and Presentations

### Book Chapters

1. Hyeok Choi, Souhail R. Al-Abed, and Dionysios D. Dionysiou, Nanostructured titanium oxide films and membranes-based photocatalysis for water treatment, pp. 39–46, in: *Nanotechnology Applications for Clean Water* (Eds. Nora Savage, Mamadou Diallo, Jeremiah Duncan, Anita Street, and Richard Sustich, ISBN: 978-0-8155-1578-4), William Andrew Publishing, Norwich, NY, 2009.
2. Hyeok Choi Souhail R. Al-Abed, and Dionysios D. Dionysiou, TiO<sub>2</sub>-based advanced oxidation nanotechnologies for water purification and reuse, in: *Sustainability Science and Engineering: Sustainable Water for the Future - Water Recycling versus Desalination* (Eds. Isabel I. Escobar and Andrea I. Schafer), Elsevier Science, Netherlands (In Press).

### Peer Reviewed Articles

1. Hyeok Choi, Souhail R. Al-Abed, Shirish Agarwal, Catalytic role of palladium and relative reactivity of substituted chlorines during adsorption and treatment of PCBs on reactive activated carbon. *Environmental Science and Technology* (Accepted for Publication).
2. Valeria Puddu, Hyeok Choi, Dionysios D. Dionysiou, Gianluca Li Puma, TiO<sub>2</sub> Photocatalyst for indoor air remediation: Influence of crystallinity, crystal phase, and UV radiation intensity on trichloroethylene degradation. *Applied Catalysis B: Environmental* (In Press).
3. Hyeok Choi, Souhail R. Al-Abed, Shirish Agarwal, Effects of ageing and oxidation of palladized iron embedded in activated carbon on the dechlorination of 2-chlorobiphenyl, *Environmental Science and Technology* 43 (2009) 4137-4142.
4. Hyeok Choi, Shirish Agarwal, Souhail R. Al-Abed, Adsorption and simultaneous dechlorination of PCBs by GAC impregnated with ZVI/Pd bimetallic particles: Mechanistic aspects and reactive capping barrier concept, *Environmental Science and Technology* 43 (2009) 488-493.
5. Hyeok Choi, Souhail R. Al-Abed, PCB congener sorption to carbonaceous sediment components: macroscopic comparison and characterization of sorption kinetics and mechanism, *Journal of Hazardous Materials* 165 (2009) 860-866.
6. Qiuqing Yang, Hyeok Choi, Souhail R. Al-Abed, Dionysios D. Dionysiou, Iron-cobalt nanocomposite catalysts: Heterogeneous peroxymonosulfate activation, cobalt leaching, and ferromagnetic properties for environmental applications, *Applied Catalysis B: Environment* 88 (2009) 462-469.
7. Hyeok Choi, Souhail R. Al-Abed, Shirish Agarwal, Dionysios D. Dionysiou, Synthesis of reactive nano Fe/Pd bimetallic system-impregnated activated carbon for the simultaneous adsorption and dechlorination of PCBs, *Chemistry of Materials* 20 (2008) 3649-3655.
8. Kai Zhang, Hyeok Choi, Dionysios D. Dionysiou, and Daniel B. Oerther, Application of membrane bioreactors in the preliminary treatment of early planetary base wastewater for long term space missions, *Water Environment*

- \_\_\_\_\_ 80 (2008) 2209-2218 (Special Issue on Bacterial Aggregation and Flocculation).
9. Qiujing Yang, Hyeok Choi, Yongjun Chen, Dionysios D. Dionysiou, Heterogeneous activation of peroxymonosulfate by supported cobalt catalysts for the degradation of organic contaminants in water: The effects of support, cobalt precursor and UV irradiation, *Applied Catalysis B: Environmental* 77 (2008) 300-307.
  10. Suzanne K. Lunsford, Nicole Speelman, Jelynn Stinson, Amber Yeary, Justyna Widera, Hyeok Choi, Dionysios D. Dionysiou, Electroanalytical and spectroscopic studies of poly(2,2'-bithiophene) modified platinum electrode to detect catechol in the presence of common interferent ascorbic acid, *Journal of Chemical Education* 85 (2008) 128-129 (Educational Article).
  11. Hyeok Choi, Maria G. Antoniou, Miguel Pelaez, Armah A. de la Cruz, Jody A. Shoemaker, Dionysios D. Dionysiou, Mesoporous nitrogen-doped TiO<sub>2</sub> for the photocatalytic destruction of the cyanobacterial toxin microcystin-LR under visible light, *Environmental Science and Technology* 41 (2007) 7530-7535 (Selected Most Accessed Articles of 2007 3/4 Quarter and Ranked 16th)
  12. Hyeok Choi, Elias Stathatos and Dionysios D. Dionysiou, Effect of surfactant in a modified sol on the physicochemical properties and photocatalytic activity of crystalline TiO<sub>2</sub> nanoparticles, *Topics in Catalysis* 44 (2007) 513-521. (Special issue on TiO<sub>2</sub> Photocatalysis).
  13. Hyeok Choi, Maria G. Antoniou, Armah A. de la Cruz, Elias Stathatos and Dionysios D. Dionysiou, Photocatalytic TiO<sub>2</sub> films and membranes for the development of efficient wastewater treatment and reuse systems, *Desalination* 202 (2007) 199-206. (Special issue on Wastewater Reclamation and Reuse for Sustainability) (Selected Top 25 Hottest Articles of 2007 1/4 Quarter and Ranked 4<sup>th</sup>, 2007 3/4 Quarter and Ranked 21<sup>st</sup>).
  14. Elias Stathatos, Hyeok Choi and Dionysios D. Dionysiou, A simple procedure of making room temperature mesoporous TiO<sub>2</sub> films with high purity and enhanced photocatalytic activity, *Environmental Engineering Science* 24 (2007) 13-20 (Special issue on Environmental Nanotechnology).
  15. Qiujing Yang, Hyeok Choi, Dionysios D. Dionysiou, Nanocrystalline cobalt oxide immobilized onto titanium dioxide nanoparticles for the heterogeneous activation of peroxymonosulfate, *Applied Catalysis B: Environmental* 74 (2007) 170-178.
  16. Kai Zhang, Hyeok Choi, Maoyi Wu, George A. Sorial, Dionysios D. Dionysiou, and Daniel B. Oerther, An ecology-based analysis of irreversible membrane biofouling in MBRs, *Water Science and Technology* 55 (2007) 395. (Special issue on Biofilm Systems)
  17. Suzanne K. Lunsford, Hyeok Choi, Jelynn Stinson, Amber Yeary, Dionysios D. Dionysiou, Voltammetric determination of catechol using a sonogel carbon electrode modified with nanostructured titanium dioxide, *Talanta* 73 (2007) 172.
  18. Hyeok Choi, Anna C. Sofranko, and Dionysios D. Dionysiou, Nanocrystalline TiO<sub>2</sub> photocatalytic membranes with a hierarchical mesoporous multilayer: Synthesis, characterization, and multifunction, *Advanced Functional Materials* 16 (2006) 1067-1074.

19. Hyeok Choi, Yong-Jin Kim, Rajender S. Varma and Dionysios D. Dionysiou, Thermally stable nanocrystalline TiO<sub>2</sub> photocatalysts synthesized via sol-gel methods modified with ionic liquid and surfactant molecules, *Chemistry of Materials* 18 (2006) 5377-5384. (Selected most-accessed articles of 2006 4/4 Quarter and Ranked 14th).
20. Hyeok Choi, Elias Stathatos and Dionysios D. Dionysiou, Sol-gel preparation of mesoporous photocatalytic TiO<sub>2</sub> films and TiO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> composite membranes for environmental applications, *Applied Catalysis B: Environmental* 63 (2006) 60-67. (Ranked 9<sup>th</sup> in the Most Cited Papers in 2 Years on Special Topic of Mesoporous Materials (Science Watch of Thomson); Selected Top 25 Hottest Articles of 2006 1/4 Quarter and Ranked 1<sup>st</sup>, 2006 2/4 Quarter and Ranked 4<sup>th</sup>)
21. Hyeok Choi, Kai Zhang, Dionysios D. Dionysiou, Daniel B. Oerther and George A. Sorial, Effect of activated sludge properties and membrane operation conditions on fouling characteristics in membrane bioreactors, *Chemosphere* 63 (2006) 1699-1708. (The first two authors contributed equally)
22. Hyeok Choi, Elias Stathatos and Dionysios D. Dionysiou, Synthesis of nanocrystalline photocatalytic TiO<sub>2</sub> thin films and particles using sol-gel method modified with nonionic surfactants, *Thin Solid Films* 510 (2006) 107-114. (Selected Top 25 Hottest Articles of 2006 2/4 Quarter and Ranked 6th).
23. Kai Zhang, Hyeok Choi, Dionysios D. Dionysiou, George A. Sorial, and Daniel B. Oerther, Identifying pioneer bacterial species responsible for biofouling membrane bioreactors, *Environmental Microbiology* 8 (2006) 433-440.
24. Hyeok Choi, Kai Zhang, Dionysios D. Dionysiou, Daniel B. Oerther and George A. Sorial, Influence of cross-flow velocity on membrane performance during filtration of biological suspension, *Journal of Membrane Science* 248 (2005) 189-199.
25. Yueqiang Liu, Hyeok Choi, Dionysios D. Dionysiou and Gregory V. Lowry, Trichloroethene hydrodechlorination in water by highly disordered monometallic nanoiron, *Chemistry of Materials* 17 (2005) 5315-5322.
26. Hyeok Choi, Kai Zhang, Dionysios D. Dionysiou, Daniel B. Oerther and George A. Sorial, Effect of permeate flux and tangential shear on membrane fouling for wastewater treatment, *Separation and Purification Technology* 45 (2005) 68-78. (Selected Top 25 Hottest Articles of 2005 2/4 Quarter and Ranked 3rd)
27. Kyesang Yoo, Hyeok Choi, Dionysios D. Dionysiou, Synthesis of anatase nanostructured TiO<sub>2</sub> particles at low temperature using ionic liquid for photocatalysis, *Catalysis Communications* 6 (2005) 259-262. (Selected Top 25 Hottest Articles of 2005 2/4 Quarter and Ranked 6th)
28. Hyeok Choi, Hyung-Soo Kim, Ick-Tae Yeom and Dionysios D. Dionysiou, Pilot plant study of ultrafiltration membrane system operated by feed-and-bleed mode for drinking water treatment, *Desalination* 172 (2005) 281-291.
29. Kyesang Yoo, Hyeok Choi, and Dionysios D. Dionysiou, Ionic liquid assisted preparation of nanostructured TiO<sub>2</sub> particles, *Chemical Communications* (2004) 2000-2001.
30. Ji Hoon Kim, Hyeok Choi, Hyung-Soo Kim, Ick Tae Yeom and Gee Bong Han, Effect of PACs coagulant on permeate flux in pilot scale microfiltration system

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31. Ji Hoon Kim, Hyeok Choi, Kwan Yeop Kim, Hyung-Soo Kim and Jin Mo Kim, Reservoir water treatment by membrane separation, *Journal of Korean Society on Water Quality* 18 (2002) 95-101.
32. Hyeok Choi, Young Woo Seo, Hyung Soo Kim, Jong Seong Im and Sun Jin Hwang, Evaluation of system operated by feed-and-discontinuous mode using tubular type ultrafiltration membrane for water treatment, *Journal of Korean Society of Environmental Engineers* 22 (2000) 2187-2195.

### **Editorial, Research Highlights and News**

1. Naomi Lubick, Cap and degrade: a reactive nanomaterial barrier also serves as a cleanup tool, Environmental News in *Environmental Science and Technology* 43 (2009) 235 (The article highlights our work published in *Environmental Science and Technology* 43 (2009) 488-493 and discussion with leading researchers in the research area).
2. Kellyn Betts, Top papers in environmental technology, second runner-up: Stars align for PCB cleanup technology, Environmental News in *Environmental Science and Technology* 43 (2009) 2201 (The article introduces our work published in *Environmental Science and Technology* 43 (2009) 488-493, which was selected Second Runner-Up Award – Technical for the Best Papers in 2008).
3. Hyeok Choi, Anna C. Sofranko, and Dionysios D. Dionysiou, Nanocrystalline TiO<sub>2</sub> photocatalytic membranes with a hierarchical mesoporous multilayer: Synthesis, characterization, and multifunction, Inside Cover Page of a Journal Issue *Advanced Functional Materials* 16 (2006) 2.

### **Other Published Works**

1. Suzanne K. Lunsford, Amber Yeary, Jelynn Stinson, Hyeok Choi, Dionysios D. Dionysiou, Synthesis of a sonogel-carbon modified sensor electrode with titanium oxide (TiO<sub>2</sub>) to detect catechol in the presence of common intereferent by voltammetric studies, *Analytical Science Digital Library (ASDL) e-Labware Online Articles*, May 2007. Online Educational Journal at <http://www.asdlib.org/onlineArticles/elabware>.
2. Suzanne K. Lunsford, Jelynn Stinson, Hyeok Choi, Dionysios D. Dionysiou, Voltammetric determination of catechol in the presence of a common interferent ascorbic acid at a sonogel-carbon electrode modified with titanium dioxide (TiO<sub>2</sub>), *the Electrochemical Society (ECS) Transactions* 3 (2006), 257-262.
3. Hyeok Choi and Dionysios D. Dionysiou, Preparation of nanostructured TiO<sub>2</sub> photocatalysts using surfactant-assisted sol-gel method for environmental applications, pp. 112–118, in: *Photocatalytic and Advanced Oxidation Technologies for Treatment of Air, Water, Soil, and Surface* (Eds. David Ollis and Hussain Al-Ekabi, ISBN 0-9738746-0-0), Redox Technologies, Inc., London, Canada, 2005.

## Keynote and Seminar Presentations

1. Hyeok Choi, Current Issues in TiO<sub>2</sub>-Based Advanced Oxidation Technologies and Development of New TiO<sub>2</sub> Materials. (Keynote Presentation) at *The 15<sup>th</sup> International Conference on Advanced Oxidation Technologies for Treatment of Water, Air, and Soil*, October 5-8, 2009, Niagara Fall, NY (Invited).
2. Hyeok Choi, Research Overview on Environmental Nanotechnology for Physicochemical Treatment Processes, (Seminar Presentation) in Civil and Environmental Engineering, *Northeastern University*, February 12, 2009, Boston, MA.
3. Dionysios D. Dionysiou, Hyeok Choi, Environmental Catalysis and Chemistry in Water Remediation, (Invited Lecture) at *University of North Carolina*, December 6, 2007, Charlotte, NC.
4. Dionysios D. Dionysiou, Hyeok Choi, Yongjun Chen, Novel methods for the synthesis of nanostructured materials and evaluation for the removal of emerging environmental contaminants from water. (Plenary Presentation) at *3rd International Symposium on Environmental Nanotechnology (ISENT)*, KIST, October 18, 2007, Seoul, South Korea.
5. Souhail Al-Abed, Shirish Agarwal, Hyeok Choi, Yuanxiang Fang, Nanoscale Fe/Pd and Mg/Pd bimetallics and Fe/Pd-immobilized GAC system for the adsorption and dechlorination of PCBs, (Plenary Presentation) at *3rd International Symposium on Environmental Nanotechnology (ISENT)*, KIST, October 18, 2007, Seoul, South Korea.
6. Dionysios D. Dionysiou, Maria G. Antoniou, Hyeok Choi, Yongjun Chen, Miguel Pelaez, Armah A. de la Cruz, and Jody A. Shoemaker, Destruction of cyanobacterial toxins by UV/TiO<sub>2</sub> photocatalysis—synthesis of TiO<sub>2</sub> films and reaction intermediates. (Keynote Presentation) at *The 12<sup>th</sup> International Conference on TiO<sub>2</sub> Photocatalysis: Fundamentals and Applications*, September 24-27, 2007, Niagara Fall, NY.
7. Dionysios D. Dionysiou, Maria G. Antoniou, Hyeok Choi, Armah A. de la Cruz, Jody A. Shoemaker, and Suzanne Lunsford, Advanced oxidation technologies and nanotechnologies for water treatment: Fundamentals, development and application in the destruction of cyanobacterial toxins. (Seminar Presentation) at *Patras Technological University*, June 27, 2007, Patras, Greece.
8. Dionysios D. Dionysiou, Maria G. Antoniou, Hyeok Choi, Armah A. de la Cruz, Jody A. Shoemaker, and Suzanne Lunsford, Advanced oxidation technologies and nanotechnologies for water treatment: Fundamentals, development and application in the destruction of cyanobacterial toxins. (Seminar Presentation) at *University of Patras*, June 29, 2007, Patras, Greece.
9. Dionysios D. Dionysiou, Maria G. Antoniou, Hyeok Choi, Armah A. de la Cruz, Jody A. Shoemaker, and Suzanne Lunsford, Advanced oxidation technologies and nanotechnologies for water treatment: Fundamentals, development and application in the destruction of cyanobacterial toxins. (Seminar Presentation) at *University of Cyprus*, July 3, 2007, Nicosia, Cyprus.
10. Dionysios D. Dionysiou, Maria G. Antoniou, Hyeok Choi, Armah A. de la Cruz, Jody A. Shoemaker, and Suzanne Lunsford, Advanced oxidation technologies and nanotechnologies for water treatment: Fundamentals, development and

11. Hyeok Choi, Advanced Oxidation Nanotechnologies for Environmental Remediation, (Seminar Presentation) in *Civil and Environmental Engineering, University of Hawaii*, April 30, 2007, Honolulu, HI.
12. Dionysios D. Dionysiou, Maria G. Antoniou, Hyeok Choi, Armah A. de la Cruz, and Jody A. Shoemaker, Environmental engineering aspects for chemical engineers: Case study for the destruction of cyanotoxins using advanced oxidation nanotechnologies. (Invited lecture) at *AIChE Student Chapter, University of Cincinnati*, April 25, 2007, Cincinnati, OH.
13. Dionysios D. Dionysiou, Maria G. Antoniou, Hyeok Choi, Armah A. de la Cruz, and Jody A. Shoemaker, Destruction of cyanotoxins using ultraviolet- and solar light-activated nanostructured TiO<sub>2</sub> photocatalysts, (Invited Web-cast Presentation) at US Environmental Protection Agency (US EPA), April 5, 2007, Cincinnati, OH.
14. Dionysios D. Dionysiou, Maria G. Antoniou, Hyeok Choi, Armah A. de la Cruz, and Jody A. Shoemaker, Ultraviolet- and solar light-activated nanostructured TiO<sub>2</sub> photocatalysts: Application in the destruction of cyanotoxins, a group of emerging drinking water contaminants, (Keynote Presentation) at *the Symposium on Catalytic Control of Emerging Micropollutants, Division of Environmental Chemistry, 233rd American Chemical Society National Meeting (ACS)*, March 25-29, 2007, Chicago, IL.
15. Hyeok Choi, Advanced Oxidation Nanotechnologies for Environmental Applications, (Seminar Presentation) in *Civil and Environmental Engineering, University of Massachusetts*, March 2, 2007, Amherst, MA.
16. Maria G. Antoniou, Hyeok Choi, Armah A. de la Cruz, Jody A. Shoemaker and Dionysios D. Dionysiou, Application of Thin Nano-TiO<sub>2</sub> Photocatalytic Films for the Degradation of the Cyanobacterial Toxin Microcystin-LR: Reaction Intermediates, (Seminar Presentation) in *the Advanced Graduate Seminar in Environmental Science and Engineering*, February 23, 2007, University of Cincinnati, Cincinnati, OH.
17. Dionysios D. Dionysiou, Maria G. Antoniou, Hyeok Choi, Armah A. de la Cruz, Jody A. Shoemaker and Suzanne Lunsford, Advanced oxidation technologies and nanotechnologies for water treatment: Development and application in the destruction of cyanobacterial toxins, (Keynote Presentation) at *the 2<sup>nd</sup> International Symposium on Environmental Nanotechnology (ISENT)*, Gwanju Institute of Science and Technology, Nov. 3, 2006, Gwangju, Korea.
18. Hyeok Choi, Synthesis, characterization, and environmental applications of nanostructured TiO<sub>2</sub> photocatalytic particles, films and membranes, (Seminar Presentation) in *Earth and Environmental Engineering at the Columbia University*, May 8, 2006, New York, NY.
19. Dionysios D. Dionysiou, Hyeok Choi, and Maria G. Antoniou, Advanced oxidation technologies and nanotechnologies for water purification, (Seminar Presentation) in *Environmental Engineering Science at the Washington University*, April 14, 2006, St. Louis, MO.

20. Hyeok Choi, Synthesis, characterization, and environmental applications of nanostructured TiO<sub>2</sub> photocatalytic materials, (Seminar Presentation) in *Chemical, Materials, and Biomolecular Engineering at the University of Connecticut*, April 11, 2006, Storrs, CT.
21. Dionysios D. Dionysiou, Hyeok Choi, and Maria G. Antoniou, Advanced oxidation nanotechnologies for water treatment: Development and application in the destruction of cyanobacterial toxins, (Seminar Presentation) in *School of Public and Environmental Affairs at the Indiana University*, March 23, 2006, Bloomington, IN.

### Conference Proceedings and Extended Abstracts

1. Maria G. Antoniou, Hyeok Choi, Elias Stathatos, Armah Delacruz, Jody Shoemaker, Soulla Nicolaou, and Dionysios D. Dionysiou, The detoxification of MC-LR with thin photocatalytic films, (Oral Presentation) in: Proceedings of *the International Environmental Education and Research Grand Challenge Session of the Association of Environmental Engineering and Science Professors 2009 Conference*, July 26-29, 2009, Iowa City, IA (Invited).
2. Kai Zhang, Hyeok Choi, Dionysios D. Dionysiou and Daniel B. Oerther, Influence of loading patterns on sludge properties and membrane fouling in membrane bioreactors treating synthetic early planetary base wastewater, (Oral Presentation) in: Proceedings of *the Membrane Technology 2008 Conference Jointed with Water Environment Federation Conference and Exposition (WEFTEC)*, October 18-22, 2008, Chicago, IL.
3. Souhail R. Al-Abed and Hyeok Choi, Implications of Fe/Pd bimetallic nanoparticles immobilized on adsorptive activated carbon for the remediation of groundwater and sediment contaminated with PCBs, (Oral Presentation) in: Proceedings of *the 2008 International Environmental Nanotechnology Conference: Applications and Implications*, Oct. 7-9, 2008, Chicago, IL.
4. Maria G. Antoniou, Hyeok Choi, Jody A. Shoemaker, Armah A. de la Cruz, and Dionysios D. Dionysiou, Intermediates of cyanobacterial toxins with hydroxyl-radical based advanced oxidation technologies (HT-AOTs), (Oral Presentation) at *the 2008 Annual Conference and Exposition (ACE) of American Water Works Association (AWWA)*, June 8-12, 2008, Atlanta, GA.
5. Hyeok Choi, Shirish Agarwal, Dionysios D. Dionysiou, and Souhail R. Al-Abed, Reactive Fe/Pd bimetallic systems-impregnated adsorptive activated carbon for the environmental risk management of contaminated sites, (Poster Presentation) in: Extended Abstract of the General Papers, *Division of Environmental Chemistry, 235<sup>th</sup> American Chemical Society (ACS) National Meeting*, April 6-10, 2008, New Orleans, LA.
6. Miguel Pelaez, Maria G. Antoniou, Hyeok Choi, Armah A. de la Cruz, Jody A. Shoemaker, Dionysios D. Dionysiou, Effects of water parameters on the degradation of microcystin-LR under solar light-activated TiO<sub>2</sub> photocatalysts, (Oral Presentation) in: Extended Abstract of Advances in Abiotic Transformation Processes for Micropollutants in Drinking Water and for Sourcewater Protection, *Division of Environmental Chemistry, 235<sup>th</sup> American Chemical Society (ACS) National Meeting*, April 6-10, 2008, New Orleans, LA.

7. Michelle Richter, Suzanne K. Lunsford, Amber Yearly, Jelynn Stinson, Hyeok Choi, Miguel Pelaez and Dionysios D. Dionysiou, Sonogel-carbon electrode sensor developed for detection of environmental pollutants such as PBT (persistent, bioaccumulative and toxic) chemicals, (Oral Presentation) in: Extended Abstract of *the Symposium on Recent Developments in Sensors and Sensor Networks for Contaminants in Environmental Systems, Division of Environmental Chemistry, 234<sup>th</sup> American Chemical Society (ACS) National Meeting*, August 19-23, 2007, Boston, MA.
8. Amber Yearly, Jelynn Stinson, Hyeok Choi, Suzanne K. Lunsford, and Dionysios D. Dionysiou, Voltammetric determination of catechol at a sonogel-carbon electrodes in the presence of common interferences, (Poster Presentation) in: Extended Abstract of *the General Papers, Division of Environmental Chemistry, 233rd American Chemical Society (ACS) National Meeting*, March 25-29, 2007, Chicago, IL.
9. Jelynn Stinson, Suzanne Lunsford, Justyna Widera, Hyeok Choi, and Dionysios D. Dionysiou, Electrocatalytic oxidation of beta-nicotinamide adenine dinucleotide at a poly(2,2-bithiophene)-coated glassy carbon electrode, (Poster Presentation) in: Extended Abstract of *the General Papers, Division of Environmental Chemistry, 233rd American Chemical Society (ACS) National Meeting*, March 25-29, 2007, Chicago, IL.
10. Suzanne K. Lunsford, Jelynn Stinson, Hyeok Choi, Dionysios D. Dionysiou, Voltammetric determination of catechol in the presence of a common interferent ascorbic acid at a sonogel-carbon electrode modified with titanium dioxide (TiO<sub>2</sub>), in: *the 210<sup>th</sup> Electrochemical Society (ECS) Meeting*, October 29-November 3, 2006, Cancun, Mexico.
11. Kai Zhang, Hyeok Choi, Dionysios D. Dionysiou, and Daniel B. Oerther, Application of membrane bioreactors in the preliminary treatment of early planetary base wastewater for long term space missions, (Oral Presentation) in: *Proceedings of the 79<sup>th</sup> Annual Water Environment Federation Conference and Exposition (WEFTEC)*, October 21- 25, 2006, Dallas, TX.
12. Kai Zhang, Hyeok Choi, Maui Wu, George A. Sorial, Dionysios D. Dionysiou, and Daniel B. Oerther, An ecology-based analysis of irreversible membrane biofouling in MBRs, (Oral Presentation) in: *Proceedings of the International Water Association (IWA) Specialty Conference on Biofilm Systems VI*, September 24-27, 2006, Amsterdam, Netherlands.
13. Hyeok Choi and Dionysios D. Dionysiou, Thermally stable porous nanocrystalline TiO<sub>2</sub> photocatalysts prepared by sol-gel method modified with water immiscible room temperature ionic liquid: synthesis, properties and environmental applications, (Oral Presentation) in: Extended Abstract of *the Environmental Chemistry Awards Presentation, Division of Environmental Chemistry, 232<sup>nd</sup> American Chemical Society (ACS) National Meeting*, September 10-14, 2006, San Francisco, CA. (Invited)
14. Hyeok Choi, Maria G. Antoniou, Armah. A. de la Cruz, Jody A. Shoemaker, and Dionysios D. Dionysiou, Surfactant templated sol-gel synthesis of mesoporous TiO<sub>2</sub> photocatalysts and their application in the destruction of cyanobacterial toxins, (Oral Presentation) in: Extended Abstract of *the Symposium on Catalysis*

15. Gauthan Jegadeesan, Vijayakumar Sundaram, Hyeok Choi, Dionysios D. Dionysiou, and Souhail R. Al-Abed, Arsenic removal using sol-gel synthesized titanium dioxide nanoparticles, (Poster Presentation) in: Extended Abstract of *the General Papers, Division of Environmental Chemistry, 232<sup>nd</sup> American Chemical Society (ACS) National Meeting*, September 10-14, 2006, San Francisco, CA.
16. Kai Zhang, Hyeok Choi, Maui Wu, Ting Lu, George A. Sorial, Dionysios D. Dionysiou, and Daniel B. Oerther, Ecology-based analysis of irreversible biofouling in membrane bioreactors, (Oral Presentation) in: Extended Abstract of *the Symposium on Structure, Interactions, and Reactivity at Microbial Surfaces, Division of Colloid and Surface Chemistry, 232<sup>nd</sup> American Chemical Society (ACS) National Meeting*, September 10-14, 2006, San Francisco, CA.
17. Maria G. Antoniou, Hyeok Choi, Armah. A. de la Cruz, Jody Shoemaker, and Dionysios D. Dionysiou, Application of mesoporous TiO<sub>2</sub> photocatalysts for the degradation of microcystin-LR: The degradation pathway, (Oral Presentation) in: Extended Abstract of *the Symposium on Catalysis for Water Purification and Remediation, Division of Environmental Chemistry, 232<sup>nd</sup> American Chemical Society (ACS) National Meeting*, September 10-14, 2006, San Francisco, CA.
18. C. Raillard, V. Hêquet, Hyeok Choi, D.D. Dionysiou, P. Le Cloirec, Photocatalytic oxidation of VOCs: Influence of structural properties and humidity, (Poster Presentation) in: Proceedings of *the 1<sup>st</sup> European Conference on Environmental Applications of Advanced Oxidation Processes (EAAOP)*, September 7-9, 2006, Chania, Greece.
19. Hyeok Choi, Elias Stathatos, and Dionysios D. Dionysiou, Photocatalytic TiO<sub>2</sub> films and membranes for the development of efficient wastewater treatment and reuse systems, (Oral Presentation) in: Proceedings of the *5<sup>th</sup> International Water Association (IWA) Specialty Conference on Wastewater Reclamation and Reuse for Sustainability (WRRS)*, November 8-11, 2005, Jeju, Korea.
20. Kai Zhang, Daniel B. Oerther, Hyeok Choi, Dionysios D. Dionysiou, and George A. Sorial, Examining the initiation of biofouling in membrane bioreactors treating pulp and paper wastewater, (Oral Presentation) in: Proceedings of *the 78<sup>th</sup> Annual Water Environment Federation Conference and Exposition (WEFTEC)*, October 29- November 2, 2005, Washington, D.C.
21. Hyeok Choi and Dionysios D. Dionysiou, Self-assembling and template-based sol-gel methods for the synthesis of nanocrystalline TiO<sub>2</sub>, (Oral Presentation) in: Extended Abstract of *the Symposium on Environmental Nanotechnology, Environmental Chemistry Division of the 230<sup>th</sup> American Chemical Society National Meeting (ACS)*, August 28-September 1, 2005, Washington, DC. (Invited)
22. Yueqiang Liu, Hyeok Choi, Dionysios D. Dionysiou and Gregory V. Lowry, Particle-scale understanding of TCE hydrodechlorination in water by poorly ordered nanoiron, (Oral Presentation) in: Extended Abstract of *the Symposium on Environmental Nanotechnology, Environmental Chemistry Division of the 230<sup>th</sup>*

23. Kai Zhang, Hyeok Choi, George A. Sorial, Dionysios D. Dionysiou and Daniel B. Oerther, Identifying bacterial populations highly correlated with irreversible membrane biofouling in MBR systems, (Oral Presentation) in: Proceedings of the 4<sup>th</sup> Activated Sludge Population Dynamic Meeting of the International Water Association (IWA), July 17-20, 2005, Gold Coast, Australia.
24. Hyeok Choi, Elias Stathatos and Dionysios D. Dionysiou, Preparation of nanostructured photocatalytic TiO<sub>2</sub> films and membranes using sol-gel methods modified with surfactant micelles for wastewater treatment and reuse in space, (Oral Presentation) in: Proceedings of the 35<sup>th</sup> International Conference on Environmental System (ICES) and the 8<sup>th</sup> European Symposium on Space Environmental Control Systems (ESSECS), July 11-14, 2005, Rome, Italy.
25. Hyeok Choi, Elias Stathatos and Dionysios D. Dionysiou, Preparation of nanostructured TiO<sub>2</sub> photocatalytic films and membranes using sol-gel methods modified with surfactants, (Oral Presentation) in: Extended Abstract of the 19<sup>th</sup> North American Catalysis Society Meeting (NACS), May 22-27, 2005, Philadelphia, PA.
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2. Souhail R. Al-Abed, Gautham Jegadeesan, Hyeok Choi, Dionysios D. Dionysiou, Arsenic removal using titanium dioxide nanoparticles: Macroscopic and spectroscopic evaluation, (Oral Presentation) *Division of Environmental Chemistry, 238<sup>th</sup> American Chemical Society (ACS) National Meeting*, August 16-20, 2009, Washington, DC (Accepted).
3. Maria G. Antoniou, Persoulla A. Nicolaou, Jody A. Shoemaker, Hyeok Choi, Elias, Stathatos, Armah A. de la Cluz, Dionysios D. Dionysiou, Detoxification of water contaminated with the cyanotoxin, microcystin-LR by utilizing thin TiO<sub>2</sub> photocatalytic films, (Oral Presentation) *International Environmental Education and Research Session, The Association of Environmental Engineering and Science Professors 2009 Conference*, July 26-29, 2009, University of Iowa, Iowa City, IA.
4. Hyeok Choi, Souhail R. Al-Abed, Shirish Agarwal, Eric Graybill, Reactive activated carbon impregnated with Fe/Pd: PCBs dechlorination reactivity and capacity, ageing, and oxidation, (Poster Presentation) *Division of Environmental*

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