

BIOGRAPHICAL SCHEMATIC for HYEOK CHOI

PERSONAL INFORMATION

Hyeok Choi, Ph.D.

Assistant Professor of Environmental Engineering, and Environmental & Earth Sciences Program
Department of Civil Engineering
University of Texas at Arlington
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EDUCATION

- 2007 Ph.D. Environmental Engineering, University of Cincinnati, USA**
Dissertation Title: Novel Preparation of Nanostructured Titanium Dioxide Photocatalytic Particles, Films, Membranes, and Devices for Environmental Applications (CH2M Hill/AEESP Outstanding Doctoral Dissertation Award)
Advisor: Professor Dionysios D. Dionysiou
- 2000 M.S. Environmental Engineering, Sungkyunkwan University, South Korea**
Thesis Title: Advanced Water Treatment Using Membrane Separation Technology and Membrane Bioreactor Technology
Advisor: Professor Hyung-Soo Kim
- 1998 B.S. Civil Engineering, Sungkyunkwan University, South Korea**

PROFESSIONAL EXPERIENCE

- 2009/8- Assistant Professor**
Department of Civil Engineering
University of Texas at Arlington, Arlington, TX
- Job Description:** Research and teaching in environmental engineering with an emphasis on i) the physical and chemical processes for water quality control, including advanced oxidation technologies, membrane separation process, and adsorption process, ii) in situ remediation of contaminated groundwater, soil and sediment, iii) destruction of emerging chemicals of concern, including PPCPs, PCBs, PFACs, and biological toxins, and iv) synthesis and environmental applications and implications of nanomaterials, including TiO₂, ZVI, ZVI/Pd, reactive activated carbon).
- 2007-2009 Postdoctoral Fellow of Oak Ridge Institute for Science and Education (ORISE)**
National Risk Management Research Laboratory
US Environmental Protection Agency, Cincinnati, OH
- Job Description:** Research in environmental engineering i) to investigate the nature of sorption of contaminants to environment materials, characterize related phenomena, and evaluate their implications, ii) to develop in situ remediation strategies for the organic-contaminated sites (reactive activated carbon impregnated

with Fe/Pd nanoparticles), iii) to develop proposals of research projects, experimental plans, and laboratory quality assurance plans.

2002-2007 Graduate Research Assistant
Civil and Environmental Engineering
University of Cincinnati, Cincinnati, OH, USA

Job Description: Research in environmental engineering i) to investigate hydroxyl radical and sulfate radical based advanced oxidation technologies, ii) to develop TiO₂ nanostructured materials and their environmental applications, and iii) to examine membrane fouling qualification and quantification in membrane bioreactors for wastewater treatment, as well as teaching undergraduate and graduate lab courses such as unit operations for water quality control and environmental instrumentation and participating educational events such as NSF REU and IGERT.

2000-2001 Field Manager
Woo-Zoo Construction Company, Seoul, South Korea

Job Description: Working at construction field for wastewater treatment plant i) to progress the construction timely, ii) to examine field tests, and iii) to consult clients.

1998-2000 Research Assistant
Civil and Environmental Engineering
Sungkyunkwan University, Seoul, South Korea

Job Description: Research in environmental engineering to investigate membrane separation technologies at pilot scale to treat water and wastewater.

1993-1995 Military Service
Army Engineer Corps, Korea

RESEARCH AND TEACHING INTERESTS

Environmental scientists and engineers are stewards of the environment. Through physical, chemical, and biological principles, I access, protect, and remediate water, soil, and air. As an interdisciplinary researcher, I perform research in the fields of: i) physicochemical processes for water and wastewater treatment, including advanced oxidation technologies and membrane separation technologies, ii) in situ remediation of contaminated groundwater, soil and sediment, iii) destruction of emerging chemicals of concern, and iv) green synthesis and environmental applications and implications of nanostructured functional materials. Due to the inter- and multidisciplinary nature of modern research, the boundary of research disciplines should be broken and thus I keep emphasizing broad-minded learning and research study. Multidisciplinary research unifies experimentally and theoretically derived concepts related to intelligent engineering systems with applications across a wide variety of fields. Based on my research background and experience, I teach: i) environmental core courses, including *Physical/Chemical Processes* and *Advanced Physical/Chemical Processes*, ii) lab courses, including *Environmental Analysis* and *Environmental Engineering Laboratories*, and iii) special topic courses, including *Current Topics in Environmental Engineering*. In teaching, I focus more on multidisciplinary concepts across a variety of fields including chemistry, biology, chemical engineering, materials science, and civil and environmental engineering. I believe that integrating advances in research into the graduate and undergraduate classroom in Civil and Environmental Engineering represents a tremendous challenge.

TEACHING EXPERIENCES AND ACTIVITIES

Assistant Professor: August 2009 –Present at UT-Arlington

CE 3131 Environmental Analysis (Undergraduate, 1 hrs-Lab): This lab course covers i) laboratory examinations of water, wastewater, and air, ii) water and air quality parameters and their significance, and iii) sources and types of pollutants and their effects.

CE 4351 Physical Unit Operation (Undergraduate, 3 hrs): This course covers the basics of water quality modeling that will be used in subsequent environmental engineering courses and the physical processes used in water and air quality control including a discussion of the theory, design, and operation of physical unit processes.

CE 5318 Physical-Chemical Processes I (Graduate, 3hrs): This course covers the basics of water quality modeling that will be used in subsequent environmental engineering courses and the physical processes used in water and air quality control including a discussion of the theory, design, and operation of physical unit processes.

CE 5300 Current Topics in Environmental Engineering (Graduate, 3 hrs, co-teaching with Dr. Sattler): The course provides graduate students with advanced background, knowledge, technology, theory, and application on some current topics in environmental fields, including water pollution, water and wastewater treatment, remediation of contaminated groundwater, soil and sediment, air pollution and purification, waste management, sustainable engineering, and energy and the environment. Introduction will be first provided to each selected topic and then selected articles from referred journals will be discussed.

CE 5317 Environmental Engineering Laboratories (Graduate, 3 hrs-Lab, co-teaching with Dr. Sattler): In the lab, students recreate, observe, and analyze data from environmental engineering physical/chemical processes. Lectures cover advanced analytical procedures for the analyses of air, liquid, and other wastes, including optical, chromatographic, electrical, and other instrumental methods of analysis.

CE 6325 Advanced Physical-Chemical Processes for Water Quality Control (Graduate, 3 hrs): The course represents the fundamentals and applications of various advanced physicochemical unit operations and processes for controlling drinking water quality. This will cover i) general overview on the standard, regulations, and goals of water quality, ii) general selection guide to water treatment processes, iii) detailed discussion of the theory, design, and operation of advanced physical/chemical unit processes which have not (or little) been discussed in the previous courses (CE 5318 and CE 5319, Physical/Chemical Processes I and II), including but not limited to, gas tripping, sorption, membrane separation, chemical oxidation and advanced oxidation, and disinfection, and iv) post treatment issues.

Teaching Assistant: March 2003 – June 2006 at University of Cincinnati

CEE 659 Unit Operations Laboratory and Process Monitoring (Graduate, 3 hrs); Instructor for Membrane Bioreactor and Fouling Study.

CEE 658 Environmental Instrumentation (Graduate, 3hrs); Instructor for TOC and HPLC Analyzer

CEE 724 Advanced Unit Operation for Water and Wastewater (Graduate, 3hrs); Lecture on Advanced Oxidation Technologies and Membrane Separation Technologies.

Teaching Assistant: March 1998 – February 2000 at Sungkyunkwan University, Seoul, Korea

HONORS AND SCHOLARLY AWARDS

Recognition of my Work

- 2010 Scientific and Technological Achievement Award: Level III, US Environmental Protection Agency.
- 2009 Outstanding Reviewer for the Journal of Environmental Engineering, American Society of Civil Engineers.
- 2008 CH2M Hill/AEESP (Association of Environmental Engineering and Science Professors) Outstanding Doctoral Dissertation Award (\$2250).
- 2008 ES&T (Environmental Science and Technology) Second Runner-Up Award – Technical for the Best Papers, given to Environmental Science and Technology 43 (2009) 488-493.
- 2008 The Most Cited Papers in 2 Years on Special Topic of Mesoporous Materials, the Science Watch of Thomson, given to Applied Catalysis B: Environmental 63 (2006) 60-67.
- 2007 Oak Ridge Institute for Science and Education (ORISE) Postdoctoral Research Fellowship (sponsored by US Environmental Protection Agency: \$64,800–68,000/Year for Stipend + \$6,000/Year for Travel).
- 2007 Scarpino Award for Best Doctoral Dissertation, Environmental Engineering and Science Faculty of University of Cincinnati, USA (\$500).
- 2006 Certificate of Merit Award for First Paper Presentation, Division of Environmental Chemistry, American Chemical Society, USA (232nd National Meeting).
- 2006 Graduate Student Research Paper Award, Division of Environmental Chemistry, American Chemical Society, USA (\$1000).
- 2006 Inside Cover Page of a Journal Issue, Advanced Functional Materials 16 (2006) 2, Wiley-VCH Verlag GmbH & Co. KGaA.
- 2006 Advanced Degree/Continuing Education Scholarship, Ohio Section–American Water Works Association, USA (\$1500).
- 2006 University Dean's Distinguished Dissertation Fellowship, University of Cincinnati Research Council, USA (\$20,400/Year for Stipend + \$2,000/Year for Travel).
- 2006 Graduate Student Award for Exemplary Scholarship, Graduate Student Governance Association of University of Cincinnati, USA (\$400).
- 2006 John David Eye Scholarship, Environmental Engineering and Science Faculty of University of Cincinnati, USA (\$1000).
- 2006 Jacob D. and Lillian Rindsberg Award, Graduate Research and Studies of University of Cincinnati, USA (\$10000).
- 2005 Graduate Student Award for Excellence in Graduate Studies, Division of Environmental Chemistry, American Chemical Society, USA.
- 2005 Summer Graduate Student Research Fellowship, University of Cincinnati Research Council, USA (\$3000 for Summer Stipend).
- 2004 Summer Graduate Student Research Fellowship, University of Cincinnati Research Council, USA (\$3000 for Summer Stipend).
- 2004 Richard C. Wigger Scholarship, Environmental Engineering and Science Faculty of University of Cincinnati, USA (\$1000).
- 2003 Summer Graduate Student Research Fellowship, University of Cincinnati Research Council, USA (\$3000 for Summer Stipend).
- 2002 University Graduate Scholarship (2002-2007), University of Cincinnati, USA.

- 1999 Graduate Student Scholarship (1999-2000), Sungkyunkwan University, Korea.
- 1998 Graduate Student Teaching Assistantship (1998-1999), Sungkyunkwan University, Korea.
- 1996 Undergraduate Student Scholarship, Sungkyunkwan University, Korea.

Recognition of Work with Advisees and Collaborators

- 2011 Texas Water Resources Institute (TWRI) Graduate Student Grant Program Supported by U.S. Geological Survey (USGS), to Prince Nfodzo under supervision of Prof. Hyeok Choi for his study on PCB cleanup in the Trinity River in North Texas (\$15,319).
- 2011 Arthur R. Poor Graduate Civil Engineering Scholarship, to Prince Nfodzo for his academic performance and outstanding research in civil engineering, the Construction Research Center Scholarship Committee at UT-Arlington (\$1,000).
- 2009 NSF-AEESP Grand Challenge Student Paper Award, to Maria Antoniou who was mentored by Hyeok Choi for her study on the detoxification of MC-LR with thin photocatalytic films during 2003–2006, Association of Environmental Engineering and Science Professors, USA (\$500).
- 2007 Undergraduate Student Award in Environmental Chemistry, to Daniel Breetz who was mentored by Hyeok Choi for his research experience on plants-assisted synthesis of nanoparticles during 2004–2006, Division of Environmental Chemistry, American Chemical Society, USA (\$1000).
- 2005 Second Place Research Presentation Award, to Anna C. Sofranko from University of Virginia, who was mentored by Hyeok Choi for her research experience on inorganic membrane for water treatment during 2005, National Science Foundation Summer Research Experiences for Undergraduates Program for Membrane Science and Technology (\$500).

TEACHING AND RESEARCH GRANTS AND CONTRACTS

1. PI: Hyeok Choi; Title: In Situ Remediation of the Trinity River in North Texas Contaminated with Polychlorinated Biphenyls; Funding Source: Texas Water Resources Institute (TWRI) Grant Sponsored by US Geological Survey (USGS); Award Date: June 1, 2011-May 31, 2012 (12 Months); Award Amount: \$15,319.
2. PI: Hyeok Choi; Title: Transport Characteristics of Engineered Titanium Oxide Nanoparticles in the Environment; Funding Source: Research Enhancement Program (REP) Grant of the University of Texas at Arlington; Award Date; June 1, 2010-May 31, 2011 (12 Months); Award Amount: \$3,971.
3. Co-PI: Hyeok Choi (PI: Richard Billo); Title: A Carbon Extraction Process for Converting Southwestern Lignite to JP-8; Funding Source: Defense Advanced Research Projects Agency (DARPA) of US Department of Defense (DoD); Award Date: September 1, 2009-August 31, 2010 (12 Months); Role: Task III Co-Leader with Dr. Melanie Sattler; Total Award Amount: \$545,837.

PENDING RESEARCH AND TEACHING PROPOSALS

1. 2012 National Science Foundation (NSF)-Faculty Early Career Development (CAREER) in Environmental Engineering (EE), Integrating Adsorptive, Oxidative, and Reductive Pathways for the Versatile Treatment of Recalcitrant Organic Contaminants (Single PI, \$430,265 for 5 Years: 03/01/2012-2/28/2017) – Proposal Submitted.

2. 2011 Paul L. Busch Award-Water Environment Research Foundation (WERF), Solar Driven Water Reclamation and Reuse: Integrated Development of a Deployable High-Efficiency Photocatalytic Reactor (PI, \$100,000) for 1 Year: 10/01/2011-09/30/2012) –Proposal Submitted.
3. 2011 National Science Foundation-Cyber-Physical System (CPS), CPS: Medium: Collaborative Research: Wireless In Situ Monitoring Network for Environmental Risk Management of Contaminated Sites (Co-PI, \$692,730) for 4 Year: 11/01/2011-10/31/2015) –Proposal Submitted.

GRADUATE STUDENTS ADVISED

Current Students

Ph.D. Students

Prince Nfodzo: Decomposition of Triclosan with Sulfate Radicals Generated by the Interaction of Transition Metals with Common Oxidants (Ph.D. Comprehensive Exam Passed on April 29, 2011)

Wasiu Lawal: Integrating Adsorption, Oxidation and Reduction Pathways for the Treatment of Perfluoroalkyl Compounds (Started in August 2011)

M.S. Students

Tushar Patil: Fate and Transport of Nanomaterials in the Environment (Joined on Oct. 2009)

COMMITTEE SERVICE

Doctoral Dissertation Committee

Department of Civil Engineering, University of Texas at Arlington

Sulak Sumitsawan (Dr. Melanie Sattler); Photocatalytic Treatment of Volatile Organics and Mercury in Air: Plasma-Modified vs. Standard Titanium Dioxide (Passed Ph.D. Defense on Aug. 3, 2011).

Roja Haritha Gangupomu (Dr. Melanie Sattler); A Comparative Study of Physical and Chemical Properties of Dahlia Nanohorns and Powdered Activated Carbon for Hazardous Air Pollutant Removal

Ketwalee Kositkanawuth (Dr. Melanie Sattler); Characterization of Pyrolysis Products from Algae and Polystyrene (PS) Plastic Waste

Nagasreenivasu Talluri (Dr. Melanie Sattler); Photocatalytic Reduction of CO₂ Using Carbon Nanohorns

Gautham Eapi (Dr. Melanie Sattler);

Arpitar Gandhi (Dr. Melanie Sattler);

Marcia Kuusisto (Dr. Melanie Sattler);

Trupti Kulkarni (Dr. Mohammad Najafi);

Said Altouqi (Dr. Melanie Sattler);

Master Thesis Committee

Department of Civil Engineering, University of Texas at Arlington

Pius Agyemang (Dr. Mohammad Najafi); Effectiveness of Public Private Partnership in Infrastructure Projects (Passed on 4/12/2011)

Shripad Diplip Maldikar (Dr. Mohammad Najafi); An Investigation of the Loss in Productivity due to Constantly Varying Noise Conditions (Passed on 11/24/2010)

Sahar Hasan (Dr. Mohammad Najafi); Evaluation of Project Delivery Methods for Trenchless Construction (Passed on 11/22/2010)

Jain Abhay (Dr. Mohammad Najafi); Evaluation of Trenchless Renewal Methods for Potable Water Pipes (Passed on 11/02/2010)

Jwala Raj Sharma (Dr. Mohammad Najafi); Development of a Preliminary Cost Estimation Method for Water Treatment Plants (Passed on 04/12/2010)

Mustafa Z. Kanchwala (Dr. Mohammad Najafi); Testing and Design Life Modeling of Polyurea Liners for Potable Water Pipes (Passed on 04/08/2010)

Master of Engineering Committees without Thesis (with Project)

Department of Civil Engineering, University of Texas at Arlington

Kedar Kunal Muddagowni (Dr. Mohammad Najafi); A Study on Inspection Rehabilitation and Renewal Needs of Culverts (Passed on 5/2/2011)

Kosha Shah (Dr. Mohammad Najafi); Risk Management in Pipeline Infrastructure (Passed on 11/19/2010)

Neel Modi (Dr. Mohammad Najafi); Risk Management in Pipeline Infrastructure (11/19/2010)

Gillespie III Charles (Dr. Mohammad Najafi); Preplanning Aspects and Permit Requirements for Rural Texas Commercial Construction (Passed on 11/18/2010)

Shivajirad Vijaykumar (Dr. Mohammad Najafi); Applicability of Restrained Polyvinyl Chloride (PVC) Pipe in Horizontal Directional Drilling (Passed on 11/18/2010)

Silpa Inaganti (Dr. Mohammad Najafi); Development of a Decision Support System and Cost Analysis for Microtunneling Projects (Passed on 11/17/2010)

Abhinav Huli (Dr. Mohammad Najafi); Challenges Faced during the Design of Alignment in Horizontal Directional Drilling and Solutions to Avoid Hydrofracture (Passed on 11/04/2010)

Si Xu (Dr. Andrew Kruzic) (Passed on 6/22/2010)

Merin Lince (Dr. Melanie Sattler); Dispersion Modeling of Mercury Using AERMOD for a Coal-Fired Power Plant in Texas (Passed on 5/31/2010)

Thirumugam M.G. Dharuman (Dr. Melanie Sattler) (Passed on 11/23/2009)

Rathan Sakthi Sundaram (Dr. Melanie Sattler) (Passed on 11/20/2009)

Parthen Parikh (Dr. Melanie Sattler); Thermal Catalytic Oxidizers for Destruction of Alcohols Used in Generic Pharmaceutical Industry and Other VOC Control Technologies (Passed on 11/19/2009)

University of Texas at Arlington Committees

2009- Present President's Campus Sustainability Committee

Department of Civil Engineering Committees

2009- Present the Graduate Studies Committee for the CE

Department of Earth and Environmental Sciences

2009- Present the Graduate Studies Committee for the EES Program

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

Member, American Chemical Society

Member, American Water Works Association

Member, International Water Association

Member, Water Environment Federation

Member, Association of Environmental Engineering and Science Professors

Associate Member, American Society of Civil Engineers

PROFESSIONAL SERVICE

Professional Engineering Service

Served as an Instructor for Environmental Engineering (Water and Wastewater Courses) in Professional Engineering Practices and Principles Examination in Civil Engineering, University of Texas at Arlington, 2010 Fall, 2011 Fall.

Journal Review (47)

Environmental Core

Air, Water and Soil Pollution

Applied Catalysis B: Environment

CLEAN-Soil, Air, Water

Desalination

Desalination and Water Treatment

Environmental Engineering Science

Environmental Health Perspectives

Environmental Science and Technology

Journal of Advanced Oxidation Technologies

Journal of Environmental Engineering

Journal of Hazardous Materials

Water Environment Research

Water Research

Water Science and Technology

Chemical and Materials Interdisciplinary

Advanced Materials

American Institute of Chemical Engineers Journal

American Mineralogist

Applied Catalysis A: General

Applied Surface Science
Biomacromolecules
Catalysis Communications
Catalysis Today
Chemical Engineering Communications
Chemical Engineering Journal
Chemical Journals
Chemistry of Materials
Crystal Growth and Design
Industrial and Engineering Chemistry Research
Journal of Alloys and Compounds
The Journal of the American Ceramic Society
Journal of Materials Science
Journal of Membrane Science
Journal of Photochemistry and Photobiology A
Journal of Physical Chemistry B
Materials Chemistry and Physics
Materials Research Bulletin
Materials Science and Engineering B
Microporous and Mesoporous Materials
Powder Technology
Reaction Kinetics and Catalysis Letters
Recent Patents on Materials Science
Separation and Purification Technology
Separation Science and Technology
Surface and Coatings Technology

Nanotechnology

Journal of Nano Research
Journal of Nanomaterials
Journal of Nanoparticle Research
Journal of Nanoscience and Nanotechnology

Proposal Review

National Science Foundation

CONFERENCE SESSION ORGANIZED OR CHAIRED

Member of the International Organizing Committee, The 17th International Conference on Advanced Oxidation Technologies for Water, Air and Soil, November 7-10, 2011, San Diego, CA, USA.

Member of the Organizing Committee, Arkansas Joint Energy Workshop (with House Committee on Agriculture, Forestry, and Economic Development), April 27-28, 2010, University of Texas at Arlington, Arlington, TX, USA.

Session Co-Chair of Environmental Considerations of Coal-To-Liquid Process, Arkansas Joint Energy Workshop (with House Committee on Agriculture, Forestry, and Economic Development), April 27-28, 2010, University of Texas at Arlington, Arlington, TX, USA.

Member of the International Organizing Committee, The 15th International Conference on Advanced Oxidation Technologies for Water, Air and Soil, October 5-8, 2009, Niagara Falls, NY, USA.

Session Chair of Photocatalysis, Catalyst Synthesis and Nanotechnologies, The 15th International Conference on Advanced Oxidation Technologies for Water, Air and Soil, October 5-8, 2009, Niagara Falls, NY, USA.

CONSULTING ACTIVITIES

Alfa Technology, Cincinnati, Ohio, 2007

RESEARCH COLLABORATORS (RECENT 5 YEARS)

UT-Arlington

Prof. Melanie Sattler (Civil Engineering); Coal to Liquid Process

Prof. Qinhong Hu (Earth and Environmental Science); Fate and Transport of Nanomaterials

Prof. Sugnyong Jung (Electrical Engineering); Environmental MEMS Development

Prof. Hyejin Moon (Mechanical Engineering); Environmental MEMS Development

Prof. Kevin Schug (Chemistry); Analytical Instrumentation and Aquatic Chemistry

State and National

Prof. Dionysios D. Dionysiou (Environmental Engineering, University of Cincinnati); PCBs Decomposition Using Oxidation and Reduction

Prof. Daniel B. Oerther (Environmental Engineering, University of Cincinnati); Preventing Membrane Biofouling

Prof. Suzanne Lunsford (Chemistry, Wright State University); Development of Environmental Sensors and Electrodes

Prof. Gregory V. Lowry (Environmental Engineering, Carnegie Mellon University); Synthesis of Zerovalent Nanoiron for TCE Dechlorination

Dr. Armah A. de la Cruz (US Environmental Protection Agency); TiO₂ Photocatalytic Destruction of Biological Toxins

Dr. Souhail R. Al-Abed (US Environment Protection Agency); PCBs Cleanup in Contaminated Sediments

Dr. Hugo Destailats (Lawrence Berkeley National Laboratory); Photocatalytic Degradation of TCE

International

Prof. Li Puma Gianluca (University of Nottingham, UK); Photocatalytic Treatment of Indoor Air Pollutants

Prof. Mme Cécile Raillard (Ecole des Mines de Nantes, France); VOCs Treatment Using Photocatalytic TiO₂ Thin Films

Prof. Valerie Hequet (Ecole des Mines de Nantes, France); VOCs Treatment Using Photocatalytic TiO₂ Thin Films

Prof. Elias Stathatos (University of Patras, Greece); Visible Light-Activated TiO₂

BOOK CHAPTERS

1. Hyeok Choi, Prince Nfodzo, Souhail R. Al-Abed, Shirish Argawal, Dionysios D. Dionysiou, Activated Carbon-Supported Palladized Iron Nanoparticles: Applications to Contaminated Site Remediation, in: **Nanotechnology for Water and Wastewater Treatment** (Eds. J. Virkutyte, H. Thilo, J. Jegatheesan, P. Lens), International Water Association, United Kingdom, 2011 (Invited and Submitted)
2. Hyeok Choi, Souhail R. Al-Abed, and Dionysios D. Dionysiou, Elias Stathatos, and Panagiotis Lianos, TiO₂-based advanced oxidation nanotechnologies for water purification and reuse, pp. 229–254, in: **Sustainability Science and Engineering, Volume 2: Sustainable Water for the Future** (Eds. Isabel I. Escobar and Andrea I. Schafer, ISSN 1871-2711), Elsevier Science, Netherlands, 2010.
3. 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.

PEER REVIEWED ARTICLES

Published or Accepted

1. Prince Nfodzo, Hyeok Choi, Sulfate radicals destroy pharmaceuticals and personal care products. Submitted for publication in **Environmental Engineering Science** 28 (2011) 605-609.
2. Hyeok Choi, Souhail R. Al-Abed, Effect of reaction environments on PCB reactivity with activated carbon impregnated with palladized iron. **Journal of Hazardous Materials** 179 (2010) 869-874.
3. Natalia Quici, Maria L. Vera, Hyeok Choi, D. D. Dionysiou, Maria I. Litter, H. Destailats, Effects of key parameters on the photocatalytic oxidation of toluene in air under UVC irradiation at 254+185 nm. **Applied Catalysis B: Environmental** 95 (2010) 3121-319.
4. Gautham Jegadeesan, Souhail R. Al-Abed, Vijayakumar Sundaram, Hyeok Choi, Kirk G. Scheckel, Dionysios D. Dionysiou, Arsenic sorption on TiO₂ nanoparticles: Kinetics, equilibrium and spectroscopic investigation. **Water Research** 44 (2010) 965-973.
5. Valeria Puddu, Hyeok Choi, Dionysios D. Dionysiou, Gianluca Li Puma, TiO₂ Photocatalyst for indoor air remediation: Influence of crystallinity, crystal phase, and UV radiation intensity on trichloroethylene degradation. **Applied Catalysis B: Environmental** 94 (2010) 211-218. (Selected Most Accessed Articles of 2010 1/4 Quarter and Ranked 10th)

6. 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*** 43 (2009) 7510-7515.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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 Research*** 80 (2008) 2209-2218 (Special Issue on Bacterial Aggregation and Flocculation).
13. Qiuqing 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.
14. 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).
15. Hyeok Choi, Maria G. Antoniou, Miguel Pelaez, Armah A. de la Cruz, Jody A. Shoemaker, Dionysios D. Dionysiou, Mesoporous nitrogen-doped TiO₂ 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)
16. Hyeok Choi, Elias Stathatos and Dionysios D. Dionysiou, Effect of surfactant in a modified sol on the physicochemical properties and photocatalytic activity of crystalline TiO₂ nanoparticles, ***Topics in Catalysis*** 44 (2007) 513-521. (Special issue on TiO₂ Photocatalysis).
17. Hyeok Choi, Maria G. Antoniou, Armah A. de la Cruz, Elias Stathatos and Dionysios D. Dionysiou, Photocatalytic TiO₂ 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 4th, 2007 3/4 Quarter and Ranked 21st).

porous TiO₂ films with high purity and enhanced photocatalytic activity, **Environmental Engineering Science** 24 (2007) 13-20 (Special issue on Environmental Nanotechnology).

19. Qiuqing Yang, Hyeok Choi, Dionysios D. Dionysiou, Nanocrystalline cobalt oxide immobilized onto titanium dioxide nanoparticles for the heterogeneous activation of peroxydisulfate, **Applied Catalysis B: Environmental** 74 (2007) 170-178.
20. 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, **Water Science and Technology** 55 (2007) 395. (Special issue on Biofilm Systems)
21. 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.
22. Hyeok Choi, Anna C. Sofranko, and Dionysios D. Dionysiou, Nanocrystalline TiO₂ photocatalytic membranes with a hierarchical mesoporous multilayer: Synthesis, characterization, and multifunction, **Advanced Functional Materials** 16 (2006) 1067-1074.
23. Hyeok Choi, Yong-Jin Kim, Rajender S. Varma and Dionysios D. Dionysiou, Thermally stable nanocrystalline TiO₂ 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).
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4. Tushar Patil and Hyeok Choi, Fundamental Difference Between Nanoparticles and Nanostructured Particles: An Efforts to Harmonize Submicron Particle Nomenclature, (Poster Presentation) at *Symposium on Environmental Applications and Implications of Nanotechnology, Division of Environmental Chemistry, The 241st American Chemical Society (ACS) National Meeting*, March 27-31, 2011, Anaheim, CA.
5. Souhail R. Al-Abed and Hyeok Choi, Evaluating Chemical Reactivity and Mechanical Stability of Nano Palladized Iron Embedded in Activated Carbon on Dechlorination of PCBs, (Oral Presentation) at *Symposium on Redox Processes on Nanoparticles, Nanomaterials, and Nanostructured Systems in the Environment, The PACIFICHEM2010*, December 15-20, 2010, Honolulu, HI (Invited).

6. Hyeok Choi and Souhail R. Al-Abed, Reactive activated carbon impregnated with Fe/Pd nanoparticles: Innovative material development and PCB cleanup strategy, (Oral Presentation) at *Symposium on Environmental Applications and Implications of Nanotechnology, Division of Environmental Chemistry, **The 240th American Chemical Society (ACS) National Meeting***, August 22-26, 2010, Boston, MA.
7. Hyeok Choi and Souhail R. Al-Abed, Reactive activated carbon impregnated with iron nanoparticles as a new environmental risk management option for contaminated sites, (Poster Presentation) at *Symposium on Black Carbon as Geosorbent and Beyond: Contaminant Sorption, Soil Fertilization, and Carbon-Negative Strategy, Division of Environmental Chemistry, **The 240th American Chemical Society (ACS) National Meeting***, August 22-26, 2010, Boston, MA.
8. Hyeok Choi and Dionysiou, Nanostructured titanium oxide photocatalytic films and membranes: Concept and materials development, (Oral Presentation) at **18th International Conference on Photochemical Conversion and Storage of Solar Energy**, July 25-30, 2010, Seoul, Korea (Invited).
9. Melanie Sattler and Hyeok Choi, Environmental evaluation of carbon extraction process, (Oral Presentation) at **Arkansas Joint Energy Workshop** (with House Committee on Agriculture, Forestry, and Economic Development), April 27-28, 2010, University of Texas at Arlington, Arlington, TX, USA.
10. Hyeok Choi and Dionysios D. Dionysiou, Nanostructured TiO₂ photocatalytic particles, films, and membranes for environmental applications, (Oral Presentation) at *Symposium on Nanoporous Materials for Environmental Applications, Division of Environmental Chemistry, **The 239th American Chemical Society (ACS) National Meeting***, March 21-25, 2010, San Francisco, CA.
11. Hyeok Choi and Souhail R. Al-Abed, Implementation of pallidized iron-impregnated reactive activated carbon system for PCB clean-up: Effects of PCB loading, reaction pH, and co-existing NOM and ionic species, (Poster Presentation) at *Division of Environmental Chemistry, **The 239th American Chemical Society (ACS) National Meeting***, March 21-25, 2010, San Francisco, CA.
12. Elias Stathatos, Hyeok Choi, and Dionysios D. Dionysiou, Porous nanocrystalline TiO₂ fibers for the destruction of organic contaminants in water (in Greek), **4th Pan-Hellenic Conference on Porous Materials**, *The University of Patras Conference Center*, October 22-23, 2009, Patras, Greece.
13. Natalia Quici, Maria L. Vera, Hyeok Choi, D. D. Dionysiou, Maria I. Litter, H. Destailats, Effects of key parameters on the photocatalytic oxidation of toluene at low concentrations in air under 254+185 nm-UV irradiation, **2nd European Conference on Environmental Applications of Advanced Oxidation Processes (EAAOP2)**, September 9-11, 2009, Cyprus.
14. 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, **The 238th American Chemical Society (ACS) National Meeting***, August 16-20, 2009, Washington, DC.
15. 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 TiO₂ 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.

16. 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 Chemistry, The 237th American Chemical Society (ACS) National Meeting*, March 22-26, 2009, Salt Lake City, UT.
17. M. I. Litter, N. Quici, M. L. Vera, Hyeok Choi, D. D. Dionysiou, H. Destailats, Parameter optimization for the photocatalytic oxidation of toluene in the gas phase, (Poster Presentation), *in the 5th European Meeting on Solar Chemistry and Photocatalysis: Environmental Application, (SPEA 5)*, October 4-8 2008, Sicily, Italy.
18. Hyeok Choi, Souhail R. Al-Abed, Shirish Agarwal, Eric Graybill, and Dionysios D. Dionysiou, Activated carbon incorporated with Fe/Pd bimetallic nanoparticles: From material development to PCBs clean up, (Oral presentation) *at the first International Conference on "In-Situ and Ex-Situ Remediation of Soil, Sediment and Groundwater – Biological, Chemical and Physical Technologies: Where Are We Now and Where Are We Going?*, September 22-25, 2008, San Diego, California.
19. Qiuqing Yang, Aditya Rastogi, Hyeok Choi, Souhail R. Al-Abed, and Dionysios D. Dionysiou, Generation of sulfate radicals by homogeneous and heterogeneous activation of peroxymonosulfate with iron-based catalysts. (Oral presentation) *at the 14th International Conference on "Advanced Oxidation Technologies for Treatment of Water, Air, and Soil (AOTs-14)*, September 22-25, 2008, San Diego, California.
20. Hugo Destailats, Natalia Quici, Daria Kibanova, Maria L. Vera, Hyeok Choi, Javiera Cervini-Silvea, Dionysios D. Dionysiou, and Marta I. Litter, Elimination of indoor air pollutants by photocatalytic oxidation: Key parameters and challenges. (Oral presentation) *at the 13rd International Conference on "TiO₂ Photocatalysis: Fundamentals and Applications*, September 22-25, 2008, San Diego, California.
21. Dionysios D. Dionysiou, Maria G. Antoniou, Miguel Pelaez, Hyeok Choi, Armah, A de la Cruz, and, Jody A. Shoemaker, Application of UV and visible-light activated nanostructured TiO₂ catalysts for the destruction of emerging organic contaminants in water, (Oral Presentation) *at the Symposium on Environmental, Health, and Safety Aspects of Engineered Nanomaterials, Division of Analytical Chemistry, The 236th American Chemical Society National Meeting (ACS)*, August 17-21, 2008, Philadelphia, PA (Invited).
22. Qiuqing Yang, Hyeok Choi, Souhail R. Al-Abed, Dionysios D. Dionysiou, Heterogeneous Activation of Peroxymonosulfate with iron-cobalt bimetallic nanocatalysts, (Oral Presentation) *at the Symposium on Environmental Applications, Implications, and Ethics of Nanoparticles, Nanomaterials, Nanodevices, and Nanosystems, 1st International Conference from Nanoparticles and Nanomaterials to Nanodevices and Nanosystems (IC4N-2008)*, June 16-18, 2008, Chalkidiki, Greece (Invited).
23. Souhail R. Al-Abed, Hyeok Choi, Shirish Agarwal, Dionysios D. Dionysiou, Applications of nanomaterials in risk management of environmental pollutants: The use of bimetallic systems, (Oral Presentation) *at the Symposium on Environmental Applications, Implications, and Ethics of Nanoparticles, Nanomaterials, Nanodevices, and Nanosystems, 1st International Conference from Nanoparticles and Nanomaterials to Nanodevices and Nanosystems (IC4N)*, June 16-18, 2008, Chalkidiki, Greece (Invited).
24. Valeria Puddu, Gianluca Li Puma, Hyeok Choi, and Dionysios D. Dionysiou, Photocatalytic decomposition of trichloroethylene in air by nanostructured TiO₂ films: Effect of TiO₂ properties and UV light intensity, (Oral Presentation) *at the Symposium on Chemical Processing of Nanostructured Materials, 2008 American Institute of Chemical Engineers (AIChE) Spring Meeting*, April 6-10, 2008, New Orleans, LA.
25. Hyeok Choi, Maria G. Antoniou, Miguel Pelaez, Armah A. de la Cruz, and Dionysios D. Dionysiou, Synthesis of N-TiO₂ using surfactant and evaluation for the destruction of

**th International Conference on TiO₂
Photocatalysis: Fundamental and Applications**, Sept. 24-27, 2007, Niagara Falls, NY.

26. Valeria Puddu, Hyeok Choi, Gianluca Li Puma, and Dionysios D. Dionysiou, Gas phase photocatalytic decomposition of trichloroethylene by immobilized TiO₂ film reactor: Effect of TiO₂ properties and UV light intensity, (Poster Presentation) at **the 12th International Conference on TiO₂ Photocatalysis: Fundamental and Applications**, Sept. 24-27, 2007, Niagara Falls, NY.
27. Maria G. Antoniou, Hyeok Choi, Miguel Pelaez, Armah. A. de la Cruz, Jody A. Shoemaker and Dionysios D. Dionysiou, Visible light activated nitrogen-doped TiO₂ nanostructured photocatalysts: Destruction of microcystin-LR, an emerging drinking water contaminant, (Poster Presentation) at **the Second International Conference on Semiconductor Photochemistry (SP-2)**, July 23-25, 2007, Aberdeen, UK (Invited).
28. Maria G. Antoniou, Hyeok Choi, Armah A. de la Cruz, Jody A. Shoemaker and Dionysios D. Dionysiou, Degradation of the cyanobacterial toxin microcystin-LR with thin nano-TiO₂ photocatalytic films: Reaction intermediates, (Poster Presentation) at **the 2007 Annual Conference and Exposition (ACE) of American Water Works Association (AWWA)**, June 24-28, 2007, Toronto, Canada (Invited).
29. Dionysios D. Dionysiou, Maria G. Antoniou, Hyeok Choi, Armah. A. de la Cruz, and Jody A. Shoemaker, Advanced oxidation technologies and nanotechnologies for water treatment: fundamentals, development and application in the destruction of microcystin LR. (Oral Presentation) at **the U.S. EPA Workshop on Innovative Approaches for Detecting Microorganisms in Water**, June 18-20, 2007, Cincinnati, Ohio (Invited).
30. Hyeok Choi, Maria G. Antoniou, Miguel Pelaez, Armah A. de la Cruz, and Dionysios D. Dionysiou, Visible light activated nitrogen-doped TiO₂ nanostructured photocatalysts: Synthesis and Environmental Applications, (Poster Presentation) at **the Ohio Nanotechnology Summit**, April 24-25, 2007, Akron, OH.
31. Maria G. Antoniou, Hyeok Choi, Armah. A. de la Cruz, Jody Shoemaker, and Dionysios D. Dionysiou, Detoxification of cyanobacterial toxin-contaminated water using titanium dioxide photocatalytic films, (Poster Presentation) at **the 2007 Ohio Nanotechnology Summit**, April 24-25, 2007, Akron, OH.
32. Hyeok Choi Maria G. Antoniou, and Dionysios D. Dionysiou, Visible light-activated mesoporous titanium dioxide photocatalysts synthesized via sol-gel method employing nitrogen-containing surfactant templates, (Oral Presentation) at **the Symposium on Nanotechnology and the Environment: Focus on Green Nanotechnology, Division of Industrial and Engineering Chemistry, The 233rd American Chemical Society National Meeting (ACS)**, March 25-29, 2007, Chicago, IL.
33. Hyeok Choi, Dionysios D. Dionysiou, Surfactant templated-based sol-gel synthesis of mesoporous nanocrystalline TiO₂ photocatalytic materials immobilized on supports for environmental applications, (Oral Presentation) at **the Symposium on Nanoscience Fostered Advances in Sustainability, Division of Colloid and Surface Chemistry, The 233rd American Chemical Society National Meeting (ACS)**, March 25-29, 2007, Chicago, IL. (Invited)
34. Kai Zhang, Hyeok Choi, Dionysios D. Dionysiou, Daniel B. Oerther, Influence of loading modes on sludge properties in membrane bioreactors treating a synthetic Early Planetary Base Wastewater, (Poster Presentation) in: Extended Abstract of **the 37th Mid-Atlantic Industrial and Hazardous Waste Conference**, March 21-23, 2007, Cincinnati, OH.
35. Maria G. Antoniou, Hyeok Choi, Armah. A. de la Cruz, Jody Shoemaker, and Dionysios D. Dionysiou, Degradation of the cyanobacterial toxin microcystin-LR with thin nano-TiO₂ photocatalytic films: Reaction intermediates, (Oral Presentation) at **the 68th Ohio Section**

36. Hyeok Choi, Maria G. Antoniou, Armah. A. de la Cruz, Jody Shoemaker, and Dionysios D. Dionysiou, Mesoporous TiO₂ thin films: Photocatalytic destruction of microcystin-LR, (Poster Presentation) at **the 11th International Conference on TiO₂ Photocatalysis: Fundamental and Applications**, Sept. 25-28, 2006, Pittsburgh, PA.
37. Maria G. Antoniou, Hyeok Choi Armah. A. de la Cruz, Jody Shoemaker, and Dionysios D. Dionysiou, Application of photocatalytic films for the destruction of the cyanotoxin microcystin-LR: Reaction intermediates, (Oral Presentation) at **the 11th International Conference on TiO₂ Photocatalysis: Fundamental and Applications**, Sept. 25-28, 2006, Pittsburgh, PA.
38. Hyeok Choi, Yong Jin Kim, Rajender S. Varma and Dionysios D. Dionysiou, Thermally stable porous anatase TiO₂ prepared by sol-gel method modified with water immiscible room temperature ionic liquid and surfactant templates: synthesis, characterization, and photocatalytic evaluation, (Oral Presentation) at **the 1st European Conference on Environmental Applications of Advanced Oxidation Processes (EAAOP)**, September 7-9, 2006, Chania, Greece.
39. Maria G. Antoniou, Hyeok Choi, Armah A. de la Cruz and Dionysios D. Dionysiou, Photocatalytic degradation of the hepatotoxin microcystin-LR with mesoporous TiO₂ thin films, (Poster Presentation) in: Proceedings of **the 1st European Conference on Environmental Applications of Advanced Oxidation Processes (EAAOP)**, September 7-9, 2006, Chania, Greece.
40. Maria G. Antoniou, Hyeok Choi, Armah. A. de la Cruz, Jody Shoemaker, and Dionysios D. Dionysiou, Detoxification of cyanobacterial toxin-contaminated water using titanium dioxide photocatalytic films, (Poster Presentation) at **the 30th International Symposium on High Performance Liquid Phase Separations and Related Techniques (HPLC)**, June 17-23, 2006, San Francisco, CA.
41. Hyeok Choi, Maria G. Antoniou, Armah. A. de la Cruz, and Dionysios D. Dionysiou, Nanostructured TiO₂ photocatalytic films and membranes with hierarchical properties for the destruction of cyanobacterial toxins, (Poster Presentation) at **the 2nd International Nanotechnology Conference on Communication and Cooperation (INC2)**, May 15-18, 2006, Arlington, VA.
42. Hyeok Choi, Dionysios D. Dionysiou, Degradation of cyanobacterial toxins with immobilized TiO₂ photocatalysts, (Poster Presentation) at **the University of Cincinnati Showcase**, April 21 – 22, 2006, Cincinnati, OH.
43. Hyeok Choi, Maria G. Antoniou, Dionysios D. Dionysiou, Photocatalytic destruction of microcystin-LR using N-doped mesoporous TiO₂ under visible light irradiation, (Poster Presentation) at **the 2006 Ohio Nanotechnology Summit**, April 4 – 5, 2006, Columbus, OH.
44. Hyeok Choi, Anna C. Sofranko, Dionysios D. Dionysiou, Self-assembled nanostructured crystalline TiO₂ thin films and TiO₂/Al₂O₃ composite membranes with simultaneous photocatalytic, disinfection, separation, and anti-biofouling properties, (Oral Presentation) at **the Symposium on Nanomaterials and the Environment, 2005 Materials Research Society (MRS) Fall Meeting**, Nov. 28 – Dec. 2, 2005, Boston, MA. (Invited)
45. Hyeok Choi, Dionysios D. Dionysiou, Environmental applications of photocatalytic TiO₂ films and membranes, (Poster Presentation) at **the 2005 Annual Meeting, American Institute of Chemical Engineers (AIChE)**, Oct. 30 – Nov. 4, 2005, Cincinnati, OH.

46. Hyeok Choi, Dionysios D. Dionysiou, Ionic liquid-assisted sol-gel methods modified with surfactant molecules for the synthesis of highly porous nanostructured TiO₂ photocatalyst, (Oral Presentation) at **the 10th International Conference on TiO₂ Photocatalysis: Fundamental and Applications**, Oct. 23-27, 2005, Chicago, IL.
47. Hyeok Choi, Anna C. Sofranko, Dionysios D. Dionysiou, Self-assembling and template-based sol-gel methods for the synthesis of nanocrystalline TiO₂: particles, films and membranes, (Oral Presentation) at **the 10th International Conference on TiO₂ Photocatalysis: Fundamental and Applications**, Oct. 23-27, 2005, Chicago, IL.
48. Hyeok Choi, Maria G. Antoniou, Armah A. de la Cruz, Dionysios D. Dionysiou, Development and environmental applications of TiO₂ photocatalytic membranes and films, (Poster Presentation) at **the 10th International Conference on TiO₂ Photocatalysis: Fundamental and Applications**, Oct. 23-27, 2005, Chicago, IL.
49. Hyeok Choi, Anna C. Sofranko, Dionysios D. Dionysiou, Environmental applications of photocatalytic TiO₂ films and membranes, (Poster Presentation) at **the 2005 Oesper Symposium, Department of Chemistry of the University of Cincinnati and Cincinnati Section of the American Chemical Society (CINTACS)**, Oct. 14, 2005, Cincinnati, OH.
50. Anna C. Sofranko, Hyeok Choi, Dionysios D. Dionysiou, Self-assembly of nanocrystalline TiO₂ thin films for the development of supported ceramic membranes with simultaneous photocatalytic, disinfection, separation, and anti-fouling functions, (Poster Presentation) at **the Forum on Summer 2005 National Science Foundation (NSF) Research Experiences for Undergraduates (REU) Program for Membrane Science and Technology**, Aug. 18, 2005, Cincinnati, OH
51. Daniel B. Oerther, Kai Zhang, Hyeok Choi, Dionysios D. Dionysiou, George A. Sorial, Interdisciplinary research on membrane biofouling connecting engineering and microbiology, (Oral Presentation) at **the 2005 Research and Educational Conference, Association of Environmental Engineering and Science Professors (AEESP)**, July 23-27, 2005, Potsdam, NY.
52. Hyeok Choi and Dionysios D. Dionysiou, Preparation of nanocrystalline TiO₂ particles, films and membranes using ionic liquids and surfactant-assisted sol-gel methods, (Oral Presentation) at **the Symposium on Nanotechnology and the Environment: Treatment/Remediation Using Nanotechnology, Division of Industrial and Engineering Chemistry, The 229th American Chemical Society National Meeting (ACS)**, March 13-17, 2005, San Diego, CA. (Invited)
53. Hyeok Choi and Dionysios D. Dionysiou, A new approach to mesoporous nanocrystalline titania from sol-gel method modified with surfactant and ionic liquid, (Poster Presentation) at **the 2005 Graduate Student Research/Scholarship Forum of the University of Cincinnati**, March 4, 2005, Cincinnati, OH.
54. Kai Zhang, Hyeok Choi, George A. Sorial, Dionysios D. Dionysiou, Daniel B. Oerther, Identifying the pioneer bacterial species responsible for irreversible biofouling in membrane bioreactors, (Poster Presentation) at **the 2005 Graduate Student Research/Scholarship Forum of the University of Cincinnati**, March 4, 2005, Cincinnati, OH.
55. Kyesang Yoo, Hyeok Choi, Yongjun Chen and Dionysios D. Dionysiou, Environmental implications of TiO₂ nanostructured materials prepared by sol-gel methods and other wet chemistry procedures, (Oral Presentation) at **the Symposium Nanotechnology and the Environment: Nano-Catalysis for Environmental Technologies, Division of Industrial and Engineering Chemistry, The 227th American Chemical Society National Meeting (ACS)**, March 28-April 1, 2004, Anaheim, CA. (Invited)

56. Hyeok Choi and Dionysios D. Dionysiou, Fabrication of nanoporous and ultra-thin TiO₂ photocatalytic membranes using surfactant-based self-assembling sol-gel method, (Poster Presentation) at ***the 2004 Graduate Student Research/Scholarship Forum of the University of Cincinnati***, March 12, 2004, Cincinnati, OH.
57. Kai Zhang, Hyeok Choi, Dionysios D. Dionysiou, George A. Sorial and Daniel B. Oerther, Examining the initiation of biofouling in membrane bioreactors for wastewater treatment, (Poster Presentation) at ***the 2004 Graduate Student Research/Scholarship Forum of the University of Cincinnati***, March 12, 2004, Cincinnati, OH.
58. Hyeok Choi, Maria Antoniou and Dionysios D. Dionysiou, The potential of UV/TiO₂ photocatalysis for the destruction of toxins in air and water and its implication as a “green” remediation technology, (Poster Presentation) at ***the International Ultraviolet Association Specialty Conference on Ultraviolet Air Treatment (IUVA)***, November 5-6, 2003, Chicago, IL.