Curriculum Vitae

Dong Suk ("Shane") Han
Research Associate Professor, Center for Advanced Materials
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EDUCATION

Ph.D.	Environmental Engineering Program, Zachry Department of Civil Engineering, Texas A&M University, College Station, TX, USA, 2009 (Dissertation title: "Sorption of Arsenic, Mercury, Selenium onto Nanostructured Adsorbents Media and Stabilization via Surface Reactions")
M.S.	Department of Environmental Science & Engineering, Keimyung University, Daegu, South Korea, 1999 (Thesis title: "Detoxification of Chlorinated Chemicals by Reductive Dehalogenation Process")
B.A.	Department of Environmental Science & Engineering, Keimyung University, Daegu, South Korea, 1996

WORK EXPERIENCES

Oct. 2018-	Research Associate Professor, Center for Advanced Materials, Qatar University
2015-2018	Associate Research Scientist, Chemical Engineering, Texas A&M University at Qatar, Qatar
2012-2015	Assistant Research Scientist, Chemical Engineering, Texas A&M University at Qatar, Qatar
2009-2012	Post-doc Research Associate, Chemical Engineering, Texas A&M University at Qatar, Qatar
2005-2009	Graduate Research Assistant, Environmental Engineering, Texas A&M University, College Station, TX, USA
1999-2001	Korea Army Service, Korea
1997-1999	Graduate Research Assistant, Environmental Engineering, Keimyung University, Korea

RESEARCH AREAS

Adsorption/Membrane Separation Technology, Desalination, Environmental Electrochemistry (CO_2 conversion, H_2 production), (Computational) Nanomaterials for Energy and Water Environment, Advanced Oxidation/Reduction Process for Water and Wastewater Treatment.

SOCIETY MEMBERSHIPS

Academic committee member, International Union of Advanced Materials (IUAM), 2012-present
Association of Environmental Engineering and Science Professors (AEESP) (2007~present)
American Water Works Association (AWWA) (2005-2008)
American Chemical Society (ACS) (received recognition of 10 years contribution) (2006~present)
Korea-America Scientists and Engineers Association (KSEA) (2006-present)

AWARDS & HONOR

2018	Top 7, Best Representative of Image Outcome (BRIO)-2, Qatar National Research Fund (QNRF), Qatar
2017	Best Poster Presentation Award (Co-supervising PhD. Student, Van Huy Tran), Research Showcase, School of Civil and Environmental Engineering, University of Technology Sydney, Australia
2017	2nd Place Poster Presentation Award (Supervising Post-doc, Dr. Sun Hee Yoon), 6th TAMUQ Annual Research and Industry Partnership Showcase, Texas A&M University at Qatar, Qatar
2016	3rd Place Poster Presentation Award (Supervising undergraduate student, Mohammed Rafique), 2016 American Institute of Chemical Engineers (AIChE) Annual Conference, USA
2016	Best Poster Presentation Award, 9th International Desalination Workshop (IDW), Masdar Institute, Abu-Dhabi, UAE
2016	Research Excellence Travel Grant Award (Supervising Post-doc, Dr. Sun Hee Yoon), Texas A&M University at Qatar, Qatar
2016	Top 10, Best Representative of Image Outcome (BRIO), Qatar National Research Fund (QNRF), Qatar
2016	Best Poster Presentation Award, 3rd Materials Science & Technology Symposium (Supervising Graduate Student, Rand ElShorafa), Qatar
2015	Recognition of 10-year service at American Chemical Society (ACS), USA
2013	Listed in *Marquis Who's Who in the World*, 30th Pearl Anniversary Edition
2012	Research Fellow Excellence Award, Texas A&M University at Qatar, Qatar
2012	Research Team Excellence Award, Texas A&M University at Qatar, Qatar
2009	C. Ellen Gonter Environmental Chemistry Best Paper Award, Division of Environmental Chemistry, American Chemical Society (ACS), USA
2006	Graduate Student Research Grant, TWRI through National Institute for Water Research, US Geological Survey (USGS), USA

FELLOWSHIPS & SCHOLARSHIPS

2008-2009	Conference Travel Award Scholarship Zachry Department of Civil Engineering, Texas A&M University, TX, USA

2008-2009	Joseph A ORP Fellowship for Excellent Graduate Student in Research & Academic Record Zachry Department of Civil Engineering, Texas A&M University, TX, USA
2007-2008	Mills Scholarship for Excellent Graduate Student in Research Texas Water Resources Institute (TWRI), TX, USA
2005-2009	Graduate Student Research Assistantship Texas A&M Engineering Experiment Station, Texas A&M University, TX, USA
2004-2006	Foreign Ph.D. Graduate Student Scholarship National Research Foundation of Korea, South Korea
2004-2005	Graduate Student Scholarship Department of Civil Engineering, Texas A&M University, TX, USA
1997-1999	Graduate Student Research Assistantship Department of Environmental Science, Keimyung University, Daegu, Korea
1992	Excellency Scholarship for Top Honor in the Admission Exam of University Keimyung University, South Korea

PROJECT GRANTS

1. "Solar-Powered Desalination Process Accompanying CO_2 Conversion and Water Purification", funded by NPRP 10th Cycle (#10-1210-160019), QNRF (Qatar National Research Fund), with co-funding from Texas A&M Experiment Engineering Station (TEES) as role of **Lead Principal Investigator (LPI)**, together with Dr. Choongho Yu (Texas A&M University, USA) and Dr. Hyunwoong Park (Kyungpook National University, Korea) as Co-PIs, and Mr. Mansoor Al-Shamri (Qatar Shell GTL Co. Ltd) and Prof. Hokyong Shon (University of Technology Sydney) as consulting members, for Jan. 2018-Dec. 2021, $699,713.

2. "Air Pollution Cleanup-based Water-Energy-Food Nexus Technology", funded by NPRP 9th Cycle (#9-052-2-020), QNRF (Qatar National Research Fund) as role of **Lead Principal Investigator (LPI),** together with Dr. Gordon Mckay (Co-PI, HBKU, Qatar), Dr. Arum Han (Co-PI, TAMU, USA), Dr. Hokyong Shon (Co-PI, UTS, Australia), Dr. Hyunwoong Park (Co-PI, KNU, Korea), and Mr. Mansoor (Qatar Shell GTL, Qatar) for Sep. 2016 – Aug. 2019**,** $693,707.

3. "International-Joint Study between Korea and Qatar for Development of Water-Energy Nexus Technology", International Cooperation Program in Science and Technology, National Research Foundation of Korea, as role of **Co-LPI**, together with Hyunwoong Park (LPI, KNU, Korea), during Dec. 01, 2015 – Nov. 30, 2016. 50, 000K KRW.

4. "Development of Solar-Powered Photo-Electrochemical System for Conversion of Carbon Dioxide into Useful Fuels", funded by NPRP 7th Cycle (#7-865-2-320), QNRF (Qatar National Research Fund), as role of **Lead Principal Investigator (LPI)**, together with Dr. Ahmed Abdel-Wahab (TAMUQ, Qatar), Dr. Michael R. Hoffmann (CALTECH, USA), Dr. Wonyong Choi (POSTECH, Korea), Dr. Hyunwoong Park (KNU, Korea) as Co-PIs, during Feb. 2015 – May. 2018,

$899,710.59.

5. **"**Self-Sustainable and Highly Efficient Desalination System based on Microbe-Nanostructure Hybrids", funded by NPRP 7th Cycle (#7-1634-2-604), QNRF (Qatar National Research Fund), as role of **Co-Lead Principal Investigator (Co-LPI)**, together with Dr. Arum Han (Lead-PI, TAMU, USA), Dr. Paul de Figueiredo (PI, TAMU, USA), and Dr. Choongho Yu (PI, TAMU, USA), during Feb. 2015-June. 2018, $899.947.07.

6. "Integrated Approach for Water, Brine, and Salt Management at Shell Pearl GTL Plant", ($408,891), Qatar Shell Research & Technology Center, Doha, Qatar, December 1, 2014-November 30, 2016, **Member of Research Team.** $600,000.

7. "Novel Adsorbent-Reactants for Treatment of Ash and Scrubber Pond Effluents", funded by U.S. Department of Energy (US DOE), National Energy Technology Laboratory (NETL), as role of **Graduate Research Assistant** (TAMU, USA), together with Dr. Bill Batchelor (LPI, TAMU, USA), during Feb. 2006-Dec. 2009, $300,000.

8. "Arsenic Removal by Novel Nanoporous Adsorbents-Kinetics, Equilibrium and Regenerability", funded by U.S. Geological Survey (USGS), National Institute for Water Research, through the Texas Water Resources Institute, as role of **Principal Investigator**, together with academic supervisor (Dr. Bill Batchelor), during March 2006-Aug. 2007, $5000.

PROJECT GRANTS (under review)

1. "Tuning Selectivity of CO_2 Conversion Products Using Solar-Osmotic Gradient Energy", Submitted to NPRP 11-standard cycle (NPRP11S-1125-170026 for 3-year project)", QNRF (Qatar National Research Fund), as role of **Lead Principal Investigator (LPI)**, together with Dr. Choongho Yu (Texas A&M University, USA), Dr. Hyunwoong Park (Kyungpook National University, Korea), and Dr. Taekdong Chung (Seoul National University, Korea) for role of PI, and Mansoor Al-Shamri (Qatar Shell GTL Co., Ltd) for consulting member.

2. "Qatar CO_2 Utilization Pathways (QCUP)", submitted to NPRP 11-cluster cycle (NPRP11C-0429-180014 for 5-year project), Qatar National Research Fund (QNRF), as a role of **Principle Investigator** in the theme of "CO_2 Utilization (Catalytic conversion): Electrochemical conversion of CO_2 into value-added chemicals", with Qatar Shell Research and Technology Center QSTP, LLC as submitting, co-funding, and Project Director institution.

TECHNICAL SERVICE CONTRACTS AT TAMUQ (through Water and Environmental Lab as research member)

1. DOW Chemical Company, "Long-term agreement for analysis of amines and glycol samples", US$250,000.00, 2017-2021
2. METITO OVERSEAS, QATAR, "Analysis of water samples", 2014-2017

3. Qatar Shell Research and Technology Centre (QSRTC), "Analysis of Kinetic hydrate inhibitor in wastewater", 2015
4. ACTION TECHNOLOGY, "Particles Size Distribution in water samples", 2015
5. NEWTECH INTERNATIONAL Co. W.L.L, "Analysis of ammonia samples in air", 2015
6. Maersk Oil Research and Technology Centre, "Calibration and validate portable TPH device", 2015
7. Qatar Scientific leadership program, "Analysis of seawater samples", 2015
8. NEWTECH INTERNATIONAL Co. W.L.L, "Analysis of heavy metals in air", 2015
9. Ministry of Environment, "Analysis of Rain water & dust and sediment", 2015
10. Total E&P Qatar, "Analysis of seawater samples", 2015
11. Shell, "Analysis of KHI in produced water", 2015
12. Process Technology, "Analysis of water samples", 2015
13. Maersk Oil Research and Technology Centre, "Characterization of petroleum crude oil and Identification of heterogeneous compounds", 2015
14. Shell GTL, "Analysis of water and soil samples", 2014
15. Ministry of Environment, "Microbial Mapping ", 2013-2014
16. Shell GTL, "Analysis of bio-sludge samples" 2014
17. Shell GTL, "Sampling and analysis of water samples", 2014
18. Shell GTL, "Analysis of kinetic inhibitors (KHI) in sweater", 2014
19. Lusail Company, "Environmental Assessment of Siltation along the Eastern Coast of Qatar North of Lusail Development to Navy Base", 2012-201
20. Qatar Fuel Additives Company (QAFAC), "Environmental Impact Assessment of Residual Chorine and Thermal Discharges into Seawater", 2013-2014
21. Qatar Petrochemical Company (QAPCO), "Provision of Study for Process Wastewater Discharge and NOx Emission Environmental Costs", 2013-2014
22. Mitsubishi Corporation, "Feasibility Study of Seawater Desalination using RO", 2013-2014
23. Qatar Fertilizers Company (QAFCO), "Assessment of the Impact of Sodium Bisulphite and Other Dechlorination Chemicals on Mesaieed Marine Environment" 2011-2013.
24. METITO OVERSEAS – QATAR, "Analysis of waste water samples" ($8068.493), Jan-Dec. 2013.
25. Total Research Center Qatar, "Analysis of waste water samples", ($ 996.71), August 2013
26. Nalco Gulf Ltd c/o Teyseer Trading & Contracting "Analysis of Didecyldimethyl ammonium Chloride DDAC" ($821.9), August2012 - January 2013
27. URS Qatar LLC & ExxonMobil Research Qatar (EMRQ), "Analysis of THM in seawater" ($25,433.0) November – December 2012.
28. Energoprojekt-Entel, "Sampling and Analysis of Water and Oil Samples from Crude Oil Storage Tanks" ($14,164.38), January 2012.
29. Saipem S.p.A.– QAFCO 5 & 6 PROJECT "Analysis of synthetic and mineral oil" ($5,972.60), July 2012.
30. Qatar Shell Research &Technology Centre (QSRTC) "Analysis of Sludge Samples and FT-IR Profile" ($1,638.35), October 2012.

31. Norsk Hydro ASA "Analysis of waste water samples" ($369.86), May 2012
32. Nalco Gulf Ltd c/o Teyseer Trading & Contracting "Analysis of Didecyldimethyl ammonium chloride DDAC" ($821.9), August - December 2012.
33. Total E&P Qatar "Analysis of water sample" ($772.05), June.2012.
34. METITO OVERSEAS – QATAR, "Analysis of waste water samples" ($8,643.83), Jan-Dec. 2012.
35. AUER Emirates Environment Technologies & Services LLC "Analysis of sludge samples" ($1,041.1) May 2012.
36. URS Qatar LLC "Analysis of Soil samples" ($832.87), August 2012.
37. Schlumberger Overseas S.A. ($813.69), July 2012.
38. QAFCO "Analysis of THMs in water" ($4,369.86) January-August 2012.
39. URS Qatar LLC., "Groundwater Survey in Qatar", (QAR162,000), March 2010- December 2010.
40. URS Qatar LLC., "Oxy Marine Eco-Survey", (QAR234,000), July 2010 September 2010.
41. BAUER Emirates Environment Technologies & Services LLC., "Assessment of Dewatering Discharge Along Doha Cornish", (QAR36,000), August 2010.

ENGINEERING EXPERIENCE

2002-2003 **Engineer Wooshin Construction Engineering Co. Ltd, South Korea**
Performed environmental assessment on the construction for Kyungjoo-Country Resort and pilot-scale RO Membrane/Filtration setup.

1999-2001 **Military Service South Korea Army, South Korea**
Served at Department of Chemistry by take a training on detecting the elements of lethal chemical and nuclear weapons, and managed wastewater treatment

1999.2-1999.6 **Internship Nakdong-River Environmental Research Center, South Korea**
O_3/Fenton/Electrolysis-based bench-scale process setup to LG construction company

1999.5 **GC Analysis Counselor, Sung-Seo Environmental Management Industry, South Korea**
Counseling analyzers who detected chlorinated chemicals (e.g., PCB and PCE) by GC with ECD

STUDENTS & RESEARCHERS (CO-) SUPERVISING EXPERIENCES

<u>Post-doc</u>

1. Sun Hee Yoon (TAMUQ, Qatar), "Density Functional Theory (DFT) study on CO_2 conversion using copper-iron oxide catalyst" & "DFT study on 3D N/Fe-carbon nanotube (CNT) electrode in the bioelectrochemical system", 2016-present.

<u>Doctorate</u>

1. Sunghoon Kim (KNU, Korea), "Simultaneous energy production and water treatment using

solar desalination (SUNDESAL) photoelectrochemical (PEC) cell", 2016-present. (NPRP supported student)
2. Unseock Kang (KNU, Korea), "Conversion of CO_2 into chemical fuels using photoelectrochemical process", 2015-2018. (NPRP-supported student)
3. Yuhang Duan (TAMU, TX, USA), "Synthesis, characterization and application of Pyrite", 2011-2016. (NPRP-supported student)
4. Van Huy Tran (UTS, Sydney, Australia), "Forward osmosis (FO) for water-energy-food nexus technology", 2016-present. (NPRP-supported student)

Masters

1. Ahmed Badreldin (TAMUQ, Qatar), "Application of nanostructured black TiO_2 to hydrogen production and water treatment", 2018-present.
2. Maria Orillano (TAMUQ, Qatar), "Removal of mercury by reactive adsorption onto iron sulfide nanoparticle", 2012-2015.
3. Kawsher Solayman (TAMUQ, Qatar), "Pyrite-supported UF/crossflow system for Hg(II) removal", 2013-2015.
4. Mary Katebah (TAMUQ, Qatar), "Photocatalytic reduction of Hg(II) using titania nanoparticles", 2014-2015.
5. Rand Elshorafa (TAMUQ, Qatar), "Constructing solar energy storage material using TiO_2-WO_3 nanocomposite and its application to chromium reduction in water", 2014-2016.

Undergraduate Research Assistants

1. Midhat Javiad (TAMUQ campus), "Integrated oil/water separation process and desalination process for treatment of produced water using 3D-printed TiO_2 membrane and capacitive deionization (CDI) technology", 2017-2018.
2. Mohamed Anas (TAMUQ campus), "Kinetic study on MO degradation using titania nanotube and Pd or N-doped titania", 2013-2015
3. Ali Mansour (TAMUQ campus), "Synthesis of p-type pyrite electrode and environmental application", 2013-2015
4. Mohammed Rafique (TAMUQ campus), "Non-ferrous Fenton oxidation using metal oxide semiconductors", 2013-present

PROFESSIONAL ACTIVITIES OR SERVICES

1. Session Chair, Session of "Management and Utilization of RO Brine", 11th International Desalination Workshop (IDW) & Membranes and Membrane Processes for Water Applications (MEMSIS), Nanyang Executive Centre, Nanyang Technological University (NTU), Singapore, July 12-13, 2018.
2. Judge appointment, "Certificate of Merit Award" for evaluation for the best oral presentation of graduate students, Division of Environmental Chemistry, 254th American Chemical Society (ACS), Aug 20-24, 2017, Washington DC, USA.

3. Scientific committee appointment, "Water Sustainability", 3rd International Water Industry Conference, September 19-22, 2017, Gyeongju, Korea
4. Session Chair, 3rd International Conference on Capacitive Deionization, Electrosorption & Electrodialysis (CDI&E), Seoul, Korea, July 3-6, 2017
5. Mentor appointment, Area of Energy & Water Environment, in National Scientific Research Competition (NSRC) for junior student (Grade 7-12 students), Ministry of Education and Higher Education, Qatar, 2017-present.
6. Co-Chair, Symposium on Redox Technologies for Low Impact Environmental Remediation (In Honor of Dr. Bill Batchelor Retirement), Institute for Environmental Technology and Industry, Pusan National University, Pusan, Korea, Oct. 27, 2016.
7. Section Chair, "Brine Management" section, 2nd International Conference on Desalination and Environment, Jan 23- Jan 26, Doha, Qatar, 2016
8. Lecturer, Water Short Course, Food Protein R&D Center, Texas Engineering Experiment Station (TEES), College Station, TX, 2014-present
9. Judge appointment, Poster Presentation Competition (in section of "Energy and Environment"), 4th Annual Research Conference (ARC)-Qatar Foundation (QF), Qatar, Nov. 18-19, 2014.
10. Judge appointment, Poster Presentation Competition (in section of "Energy and Environment"), 3th Annual Research Conference-Qatar Foundation (ARC-QF), Qatar, Nov. 23-15, 2013.
11. Coordinated "Green Forum" between Korea and Qatar with The Embassy of the Republic of Korea for organizing an environmental technology cooperation, the Grand Hyatt Hotel, Qatar, Oct 30, 2013
12. Interview as Consulting, "Job-fair for Middle-East Countries", Ministry of Employment and Labor, Korea, May, 2012

ADDITIONAL EDUCATION LEARNED (CERTIFIED)

1. "Capacitive Deionization, Electrosorption & Electrodialysis", The Korea Science & Technology Center, Seoul. Korea, organized by CDI&E 2017, July 3, 2017.
2. "Membrane-based Desalination Processes (Desal-Pro)", Masdar Institute (UAE), organized by Gwangju Institute of Science and Technology, Korea, The University of Hong Kong, Hong Kong, University of Technology Sydney, Australia (UTS), Nov. 12-13, 2016.
3. "Molecular Simulation Methods", held by Advanced Scientific Computing Center, Texas A&M University at Qatar, March 11-19, 2015
4. "Membrane Desalination & Water Reuse" training course, held by Qatar Environment & Energy Research Institute (QEERI) at College of North Atlantic, May 26-28, 2013
5. "Thermal Desalination" technical workshop, held by the Global Water Sustainability Center (GWSC) at Qatar Science & Technology Park (QSTP), March 20th, 2012

OUTREACH ACTIVITY

1. Water Well Construction for drinking water supply, at Democratic Republic of the Congo, Africa, with A Cup of Water Co., July. 2014.

INVITED TALKS AT SYMPOSYUM OR SEMINAR

1. **Dong Suk Han**, "Production of Chemical and Electrical Energy Using Seawater and Wastewater Treatment", Korea Institute of Civil Engineering and Building Technology (KICT), June 26, 2018.
2. **Dong Suk Han**, "Water-Energy-Food Challenges and Strategies at Qatar", School of Environment and Life Chemistry, Colleges of Agricultures and Life Sciences, Kyungpook National University (KNU), June 22, 2018.
3. **Dong Suk Han**, "Renewable Energy Production through Seawater and Wastewater Treatment", Department of Environmental Engineering, Pusan National University (PNU), Korea, June 07, 2018.
4. **Dong Suk Han**, "Water-Energy Nexus Technology Targeting Water Reuse, Food Security, and Renewable Energy Production", The 4th International Symposium Graduate School of Water Resources: Innovative Water Resources Development", Research Complex-1, Sungkyunkwan University, Suwon, Korea, Nov. 20-21, 2017
5. **Dong Suk Han**, "Example of Diverse Project Contracts between Qatar and Korea Industry Companies", Hyundai Ro-Tech Co., Ltd, Gwangju, Korea, July-14, 2017.
6. **Dong Suk Han**, "Bioelectrochemical System for Water Reuse and Energy Production", International Environmental Research Institute (IERI), Gwangju Institute of Science and Technology (GIST), Korea, July-14, 2017.
7. **Dong Suk Han**, "Bioelectrochemical System for Water Reuse and Energy Production", Department of Energy and Materials Engineering, Dongkuk University, July-06, 2017.
8. **Dong Suk Han**, "Security and Sustainability of Water and Energy at MENA", Class Lecture for Department of Civil Engineering, Dong-A University, Pusan, Korea, Oct-28, 2016.
9. **Dong Suk Han**, "Chemical Redox-based Water Treatment Using Nanostructured TiO_2: Light harvesting, Filtration, Fenton-mimic Oxidation", Symposium on Redox Technologies for Low Impact Environmental Remediation *("In honor of Dr. Bill Batchelor Retirement"*), Institute for Environmental Technology and Industry, Pusan National University, Pusan, Korea, Oct-27, 2016.
10. **Dong Suk Han**, "Bioelectrochemical System Toward Water-Energy Nexus Technology", Sunlight-Water Nexus Workshop, Advanced Institute of Water Industry, Kyungpook National University, Daegu, Korea, Aug-23, 2016.
11. **Dong Suk Han**, "Photoconversion of Carbon Dioxide Using Earth-Abundant Metal Oxide-based Photoelectrochemical System", Materials Science for Energy Research Outcome Seminar, Qatar National Research Fund (QNRF), QNRF Event-Hall, Tornado Tower, Doha, Qatar, May-22, 2016.
12. **Dong Suk Han** *(Invited Lecturer)*, "Forward Osmosis Toward Water-Energy-Food Nexus Technology", in the 26th Annual Practical Short Course on Membrane & Other Separations Technologies: Applications in food, dairy, beverage, and bioprocessing, Food Protein Research & Development Center (FPRDC), Texas A&M Engineering Experiment Station (TEES), College Station, TX, May 15- May 19, 2016.

13. **Dong Suk Han**, EU-GCC Workshop: Opportunities and Challenges in Sustainable Energy Research, Qatar National Research Fund (QNRF), Tornado Tower, Doha, Qatar, Feb. 29-March 01, 2016
14. **Dong Suk Han**, "Sustainable Utilization of Environment and Energy: Insights & Case studies", Department of Energy Engineering, Kyungpook National University, Daegu, Korea, Dec-22, 2015.
15. **Dong Suk Han**, "Sustainable Water Treatment and Desalination Technology: Case studies", Environmental Engineering Research Seminar Series, School of Civil and Environmental Engineering, University of Technology, Sydney (UTS), Australia, Dec-4, 2015.
16. **Dong Suk Han**, "The Nexus Technology for Water Supply, Reuse, and Security at MENA", 3rd International Water Technology Symposium for Nakdong River Waterweek, Sangju City, Korea, Oct. 10-11, 2014.
17. **Dong Suk Han** *(Invited Lecturer)*, "Pretreatment of Bio-accumulative Mercury in Water Using Reactive Nanoparticle-Supported Ultrafiltration and Photocatalytic Reduction Technology", In 24th Annual Practical Short Course on Membrane & Other Separations Technologies: Applications in food, dairy, beverage, and bioprocessing, Food Protein Research & Development Center, Texas A&M Engineering Experiment Station, College Station, TX, April 27- May 1, 2014.
18. **Dong Suk Han**, "Environment and Energy Research at Qatar: Challenges & Opportunities", Korea Institute of Industrial Technology (KITECH), Incheon, Korea, Aug-27, 2013.
19. **Dong Suk Han**, "Water Treatment Technologies and Trends", Department of Civil and Environmental Engineering, Hanyang University, Korea, May-27, 2011
20. **Dong Suk Han**, "Water Treatment Technologies and Trend", Department of Energy and Environmental Science, Keimyung University, Korea, May-21, 2011
21. **Dong Suk Han**, "Adsorptive Reduction of Selenium, Arsenic, Mercury by Pyrite (FeS_2) Toward Stable Precipitates", Department of Civil and Environmental Engineering, Korea Advanced Institute of Science and Technology (KAIST), Korea, Aug-12, 2010
22. **Dong Suk Han**, "Adsorptive Reduction of Selenium, Arsenic, Mercury by Pyrite (FeS_2) Toward Stable Precipitates", Department of Energy and Environmental Science, Keimyung University, Korea, Aug-11, 2010
23. **Dong Suk Han** ***(as Best Paper Award)***, "Sorption of Selenium(IV) and Selenium(VI) to Synthetic Pyrite (FeS_2) and Stabilization via Surface Reactions", Division of Environmental Chemistry, American Chemical Society (ACS), 238th ACS National Meeting, Washington, D.C., August 16-20, 2009
24. **Dong Suk Han**, "Removal of Arsenic from Water by Nanostructured Adsorbent Media", Graduate Student Seminar, hosted by combined departments of CVEN, BAEN and WMHS, Texas A&M University, Nov-19, 2008.

CONFERENCE PROCEEDINGS & PRESENTATIONS

(* indicates corresponding author)

1. S. Kim, J. Piao, B. J. Kim, D. S. Han, H. Park, "Sunlight-assisted electrochemical desalination

and simultaneous water treatment", 256th American Chemical Society (ACS) National Meeting, Boston, MA, USA, Aug 19-23, 2018.

2. V. H. Tran, S. Lim, N. Pathak, N. Akther, S. Phuntsho, **D. S. Han**, H. Shon, "Application of novel outer selective thin film composite hollow fiber forward osmosis membrane in osmotic membrane bioreactor treating municipal wastewater", 11th International Desalination Workshop (IDW) & Membranes and Membrane Processes for Water Applications (MEMSIS), Nanyang Executive Centre, Nanyang Technological University (NTU), Singapore, July 12-13, 2018.
3. **D. S. Han**, S. Kim, G. Piao, H. K. Shon, H. Park, "Hydrogen production and water purification using photoelectrocatalytic desalination process", 11th International Desalination Workshop (IDW) & Membranes and Membrane Processes for Water Applications (MEMSIS), Nanyang Executive Centre, Nanyang Technological University (NTU), Singapore, July 12-13, 2018.
4. U. Kang, S. Y. Choi, H.W. Jeong, G. Piao, **D. S. Han**, H. Park, "Ultra-efficient solar CO_2 conversion using semiconductor electrodes, CIMTEC-8th Forum on New Materials, Perugia, Italy, June 11, 2018.
5. M. Javiad, A. Abdel-Wahab, **D. S. Han**, "Metallic titanium(Ti) Mesh synthesis using 3D-printing technology for oil/water separation", 10th Visualization development competition & 6th 3D printing competition, Texas A&M University at Qatar, May 13, 2018.
6. S. H. Yoon, U. Kang, A. Abdel-Wahab, H. Park, **D. S. Han**, "Computational study for reaction routes of CO_2 on heterojunction Cu-Fe oxide materials", Energy Materials and Nanotechnology (EMN) Conference, Amsterdam, Netherlands, April 16-20, 2018.
7. **D. S. Han**, "Solar-Powered Desalination Process Accompanying CO_2 Conversion and Water Purification", QNRF Kick-off Forum, Qatar National Convention Center (QNCC), Feb. 21, 2018.
8. **D. S. Han**, K. Wang, A. Abdel-Wahab, Z. Yang, "A windable and stretchable three-dimensional all inorganic membrane for oil/water separation", The 10th International Desalination Workshop (IDW), BEXCO, Pusan, Korea, Nov. 22-25, 2017.
9. **D. S. Han**, S. H. Yoon, A. Abdel-Wahab, C. Yu, and A. Han, "Correlating electronic properties of 3D-carbon nanotube (CNT) sponge cathode to faradaic microbial desalination cell (MDC) by density functional theory (DFT)" The 10th International Desalination Workshop (IDW), BEXCO, Pusan, Korea, Nov. 22-25, 2017.
10. S. Y. Yang, **D. S. Han**, and H. Park (Keynote), "Development of ROS-generating oxide electrocatalysts for high efficiency remediation of aquatic pollutants", The 23rd International Conference on Advanced Oxidation Technologies for Treatment of Water, Air and Soil, Clearwater Beach, Florida, USA, Nov. 13, 2017.
11. U. Kang, S. Y. Choi, S. H. Yoon, **D. S. Han**, and H. Park (Keynote), "Development of photocatalysts for stand-alone CO_2 conversion into value-added chemicals", The 22nd International Conference on Semiconductor Photocatalysis & Solar Energy Conversion, Cleanwater Beach, Florida, USA, Nov. 13, 2017.
12. S. H. Yoon, U. Kang, H. Park, A. Abdel-Wahab, **D. S. Han**, "Density functional theory (DFT) calculations for selective formate formation from artificial photosynthesis of CO_2 and H_2O using Cu-Fe Oxide Catalyst", 2nd International Computational Science and Engineering

Conference", Doha, Qatar, Oct. 23-24, 2017.

13. B. J. Kim, **D. S. Han**, H. Park, "Membrane-using desalination cells with concurrent electrocatalytic wastewater treatment, 3rd International Water Industry Conference: Water Sustainability, Gyeongju, Korea, September 19-22, 2017.
14. S. Kim, H. Park, M. Kim, **D. S. Han**, "Sunlight-driven photoelectrocatalytic desalination, water treatment, and simultaneous production of hydrogen", 3rd International Water Industry Conference: Water Sustainability, Gyeongju, Korea, September 19-22, 2017.
15. **D. S. Han**, S. H. Yoon, C. Yu, A. Abdel-Wahab, A. Han, "Electronic properties of 3D-bifunctional carbon nanotube sponge for bioelectrical system applications", 254th ACS National Meeting, Washing, DC, USA, August 20-24, 2017.
16. V. H. Tran, **D. S. Han**, H. Park, A. Abdel-Wahab, H. Shon, "Forward osmosis using sulfur containing air pollutant as draw solution for water-energy-food nexus technology", 254th ACS National Meeting, Washing, DC, USA, August 20-24, 2017.
17. U. S. Kang, **D. S. Han**, S. H. Yoon, H. Park, "Photoproduction of liquid formate from carbon dioxide and water over a month on copper and iron mixed photocatalysts", 254th ACS National Meeting, Washing, DC, USA, August 20-24, 2017.
18. S.H. Yoon, **D.S. Han**, U. Kang, A. Abdel-Wahab, H. Park, "Density functional theory investigation of reaction energies in selective conversion of CO_2 to formate using Cu-Fe oxide material", 254th ACS National Meeting, Washing, DC, USA, August 20-24, 2017.
19. V. H. Tran, **D. S. Han**, H. Shon, "Sulfur-contained air pollutants as draw solution for forward osmosis process: water-energy-food nexus technology", CEE Research Showcase, University of Technology Sydney, April 28, 2017. ***(Best Poster Presentation Award)***
20. **D. S. Han,** T. H. Jeon, A. D. Bokare, A. Abdel-Wahab, H. Park, W. Choi, "Dual modification of hematite photoanode by Sn-doping and Nb_2O_5 layer for water oxidation", 21st Topical Meeting of the International Society of Electrochemistry, Szeged, Hungary, April 23-26, 2017.
21. ***(Keynote)*** H. Park, **D. S. Han**, U. Kang, J. J. Lee, "All-inorganic solar synthesis of liquid formate from CO_2 and water over a month on durable and recyclable copper iron photocatalyst films at efficiency exceeding photosynthesis", 21st Topical Meeting of the International Society of Electrochemistry, Szeged, Hungary, April 23-26, 2017.
22. S. H. Yoon, H. Park, A. Abdel-Wahab, **D. S. Han**, "A DFT Study on Cu-Fe Oxide Material for CO_2 Conversion: Homogeneous vs Heterogeneous Electronic Structure", 6th TAMUQ Annual Research and Industry Forum, Sheraton Hotel, Doha, Qatar, April 20, 2017. ***(2nd Place Poster Presentation Award)***
23. **D. S. Han**, R. Elshorafa, S. H. Yoon, W. Yiming, A. Abdel-Wahab, "Molecular and Macroscopic Study on Light-Harvesting TiO_2/WO_3 Materials for Environmental Applications", 6th TAMUQ Annual Research and Industry Forum, Sheraton Hotel, Doha, Qatar, April 20, 2017.
24. S. H. Yoon, H. Park, A. Abdel-Wahab, **D. S. Han**, "A density functional theory (DFT) study of electrical CO_2 conversion on the nanoporous copper foam material", 5th International Conference on Multifunctional, Hybrid and Nanomaterials, Lisbon, Portugal, March 6-10, 2017.
25. S. H. Yoon, U. Kang, H. Park, A. Abdel-Wahab, **D. S. Han**, "A density functional theory (DFT)

study for correlating electronic properties of heterojunction $CuFeO_2$/CuO Material to CO_2 photoconversion" 5th International Conference on Multifunctional, Hybrid and Nanomaterials, Lisbon, Portugal, March 6-10, 2017.

26. M. G. Rafique, M. Anas, **D. S. Han**, S. H. Yoon, A. Abdel-Wahab, "Photocatalytic oxidation-based water treatment using nano-structured TiO_2 electrodes", 2016 AIChE Annual Meeting, Hilton San Francisco Union Square, San Francisco, CA, Nov. 13-18, 2016 ***(3rd Poster Presentation Award)***.
27. **D. S. Han**, C. Erbay, C. Yu, A. Han, A. Khodary, A. Abdel-Wahab, "Factors influencing overall performance of microbial fuel cell compromised of 3D porous carbon nanotube sponge electrode toward desalination", The 9th International Desalination Workshop, Yas Island Rotana Hotel, Abu Dhabi, UAE, Nov. 13-15, 2016 ***(Best Poster Presentation Award).***
28. **D. S. Han,** S. Sahebi, S. Phunsho, L. Tijing, G. Han, A. Abdel-Wahab, H. K. Shon, "A compacted woven backing fabric-supported thin film composite membrane for pressure-assisted forward osmosis", The 9th International Desalination Workshop, Yas Island Rotana Hotel, Abu Dhabi, UAE, Nov. 13-15, 2016.
29. **D. S. Han**, R. ElShorafa, S. H. Yoon, A. Ghenymy, Y. Wubulikasimu, A. Abdel-Wahab, "Demonstration of the feasibility of water treatment by solar storage material-deposited filtration membrane", The 9th International Desalination Workshop, Yas Island Rotana Hotel, Abu Dhabi, UAE, Nov. 13-15, 2016.
30. **D. S. Han,** C. Erbay, C. Yu, A. Han, R. Sadr, A. Abdel-Wahab, "Microbial electrochemical system toward water-energy nexus technology", Research Solutions For A Sustainable Water Future in Qatar, Research Outcome Seminar, Qatar National Research Fund (QNRF), Tornado Tower, Doha, Nov. 14, 2016.
31. **D. S. Han**, R. ElShorafa, M. Rafique, S. H. Yoon, S. H. Kim, H. Park, A. Abdel-Wahab, "Nanostructured TiO_2-based water treatment: Light harvesting, filtration, and fenton-mimic oxidation", 2nd International Water Industry Conference: Water-Energy-Health Nexus, EXCO, Daegu, Korea, Oct. 18-21, 2016.
32. U. Kang, **D. S. Han**, S. H. Yoon, A. Abdel-Wahab, H. Park, "Photoconversion of carbon dioxide and water to formate on copper and iron mixed oxide catalysis", PRIME-Pacific RIM Meeting on Electrochemical and Solid State Science, 2-7 October 2016, Honolulu, Hawaii, USA.
33. S. Kim, **D. S. Han**, S. H. Yoon, A. Abdel-Wahab, H. Park, "Solar visible light storage on WO_3-CdS heterojunction", PRIME-Pacific RIM Meeting on Electrochemical and Solid State Science, 2-7 October 2016, Honolulu, Hawaii, USA.
34. **D. S. Han**, C. Yu, A. Han, A. Abdel-Wahab, "How much does membrane separator affect overall performance of microbial desalination cell?" International Conference on Nanotechnology, Nanomaterials & Thin Films for Energy Applications, 27-29 July 2016, University of Liverpool, UK.
35. S. H. Yoon, **D. S. Han**, U. Kang, H. Park, A. Abdel-Wahab, "Binary Cu-Fe oxide photocathode for application to energy and environment", International Conference on Nanotechnology, Nanomaterials & Thin Films for Energy Applications, 27-29 July 2016, University of Liverpool, UK (***Awarded as Research Excellency Travel Grant***).

36. M. Rafique, **D. S. Han**, S.H. Yoon, A. Khodary, A. Abdel-Wahab, "Advanced oxidation process using nanostructured titanium dioxide electrode", 5th TAMUQ Annual Research and Industry Forum, St. Regis Hotel, Doha, Qatar, April 12, 2016.
37. **D. S. Han**, S. H. Yoon, A. Han, C. Yu, H. Park, A. Abdel-Wahab, "Low-cost materials for constructing stand-alone system in sustainable energy and environmental application", 5th TAMUQ Annual Research and Industry Forum, St. Regis Hotel, Doha, Qatar, April 12, 2016.
38. S. H. Yoon, **D. S. Han**, H. Park, A. Abdel-Wahab, "Photoelectrochemical materials and systems for photoconversion of carbon dioxide to value-added chemicals", 5th TAMUQ Annual Research and Industry Forum, St. Regis Hotel, Doha, Qatar, April 12, 2016.
39. U. Kang, **D. S. Han**, A. Abdel-Wahab, H. Park, "Highly efficient artificial photosynthesis of formate from CO_2 and water on heterojunction copper iron oxide catalysts", Qatar Foundation (QF)-Annual Research Conference (ARC), Qatar National Convention Center (QNCC), Doha, Qatar, Nov. 22-23, 2016.
40. **D. S. Han**, C. Erbay, C. Yu, A. Han, A. Abdel-Wahab, "Carbon-based electrode materials for biotic treatment of wastewater and saline water", Qatar Foundation (QF)-Annual Research Conference (ARC), Qatar National Convention Center (QNCC), Doha, Qatar, Nov. 22-23, 2016.
41. R. Elshorafa, **D. S. Han**, H. Park, A. Abdel-Wahab, "Application of TiO_2-WO_3 composite for continuous reduction of chromium(VI) in light-limited condition", Qatar Foundation (QF)-Annual Research Conference (ARC), Qatar National Convention Center (QNCC), Doha, Qatar, Nov. 22-23, 2016.
42. **D. S. Han**, U. Kang, S. H. Yoon, H. Park, A. Abdel-Wahab, "Binary CuFe catalyst-based photoelectrochemical system for artificial photosynthesis of CO_2 and H_2O", 7th Materials Science and Engineering Symposium, March 10, Qatar University, Doha, Qatar, 2016.
43. S. H. Yoon, R. ElShorafa, M. Katebah, **D. S. Han**, A. Abdel-Wahab, "Photocatalytic reduction of toxic inorganic contaminant (Cr(VI) and Hg(II)) using nanostructured TiO_2: Nanoparticle vs nanotube", 7th Materials Science and Engineering Symposium, March 10, Qatar University, Doha, Qatar, 2016.
44. R. ElShorafa, **D. S. Han**, H. Park, A. Abdel-Wahab, "Constructing solar energy storage materials using TiO_2-WO_3 nanocomposite and its application to water treatment", 7th Materials Science and Engineering Symposium, March 10, Qatar University, Doha, Qatar, 2016 ***(Best Poster Presentation Award)***.
45. S. Lee, G. Piao, **D.S. Han**, A. Abdel-Wahab, H. Park. "Solar mining of seawater uranium using oxide semiconductors", 2nd International Conference on Desalination and Environment, Jan 23-Jan 26, Doha, Qatar, 2016.
46. **D. S. Han**, C. Erbay, C. Yu, A. Abdel-Wahab, A. Han, "Microbial fuel cell using 3D porous carbon nanotube sponge anode for water reuse and desalination", 2nd International Conference on Desalination and Environment, Jan 23- Jan 26, Doha, Qatar, 2016.
47. R. ElShorafa, M. Rafique, **D.S. Han**, H. Park, A. Abdel-Wahab, "Composite WO_3/TiO_2 nanostructured ultrafiltration membrane for treatment of chromium(VI) in water", 2nd International Conference on Desalination and Environment, Jan 23- Jan 26, Doha, Qatar, 2016.
48. **D. S. Han**, MD S. Kawsher, Y. Duan, B. Batchelor, and A. Abdel-Wahab, "Removal of mercury

from aqueous solutions by iron sulfides (FeS, FeS_2)-supported ultrafiltration process", 2nd International Conference on Desalination using Membrane Technology, July 26-29, Singapore Expo Convention and Exhibition Centre, Singapore, 2015.

49. **D. S. Han**, H. W. Jeong, A. Abdel-Wahab, H. Park, "Morphology-dependent charge transfer of crystalline ZnO and their importance for environmental and energy applications", 27th International Conference on Photochemistry, June 28- July 3, ICC Jeju, Jeju Island, Korea, 2015.
50. S. K. Choi, **D. S. Han**, A. Abdel-Wahab, H. Park, "Heterojunction p-Si wire arrays for photoelectrochemical fuel generation", 27th International Conference on Photochemistry, June 28- July 3, ICC Jeju, Jeju Island, Korea, 2015.
51. U. Kang, **D. S. Han**, A. Abdel-Wahab, M. Hoffmann, H. Park, "CO_2 and water on sodium tri-titanate nanotubes coupled with copper and CdS, 27th International Conference on Photochemistry, June 28- July 3, ICC Jeju, Jeju Island, Korea, 2015.
52. **D. S. Han**, A. Abdel-Wahab, A. Han, "Microbial desalination cell for sustainable desalination and energy production: Perspective and challenges", 4th TAMUQ Annual Research and Industry Showcase, Qatar National Convention Center, Doha, Qatar, April 23, 2015
53. MD S. Kawsher, **D. S. Han**, A. Abdel-Wahab, "Continuous removal of mercury(II) using reactive adsorbents-coated sand filtration system", 4th TAMUQ Annual Research and Industry Showcase, Qatar National Convention Center, Doha, Qatar, April 23, 2015
54. M. Katebah, A. Mansour, **D. S. Han**, A. Abdel-Wahab, "Mercury removal using titanium dioxide photocatalyst: Nanoparticle versus nanotube", 4th TAMUQ Annual Research and Industry Showcase, Qatar National Convention Center, Doha, Qatar, April 23, 2015
55. R. Elshorafa, **D. S. Han**, A. Abdel-Wahab, "Photocatalytic reduction of chromate(VI) using TiO_2/sulfite system", 4th TAMUQ Annual Research and Industry Showcase, Qatar National Convention Center, Doha, Qatar, April 23, 2015
56. **D. S. Han**, A. Abdel-Wahab, and H. Park, "Morphology-dependent photocatalytic performance of oxide semiconductors and their importance for environmental and energy applications", Energy & Water Security Workshop, Hamad Bin Khalifa University, Feb. 15-17, 2015.
57. **D. S. Han**, H. W. Jeong, S. Y. Choi, A. Abdel-Wahab, H. Park, "Morphology-dependent photocatalytic activities of crystalline ZnO and their Importance for environmental and energy applications", 4th Qatar Foundation(QF)-Annual Research Conference (ARC), Qatar National Convention Center (QNCC), 18-19 Nov.2014.
58. M. Katebah, A. Mansour, **D. S. Han**, A. Abdel-Wahab, "Mercury removal using titanium dioxide photocatalyst: Nanoparticle vs nanotube", 4th Qatar Foundation(QF)-Annual Research Conference (ARC), Qatar National Convention Center (QNCC), 18-19 Nov. 2014
59. **D. S. Han**, S. K. Choi, U. Kang, H. Park, Ahmed Abdel-Wahab, "Nanostructured p-type photocathode for selective production of hydrocarbon fuel from carbon dioxide", 3th TAMUQ Annual Research and Industry Forum, Qatar National Convention Center (QNCC), Doha, Qatar, April 7, 2014.
60. Md Solayman Kawsher, **Dong Suk Han**, Ahmed Khodary, Bill Batchelor, Ahmed Abdel-Wahab, "Pyrite (FeS_2)-supported ultrafiltration system for removal of mercury from water", 3th

TAMUQ Annual Research and Industry Forum, Qatar National Convention Center (QNCC), Doha, Qatar, April 7, 2014.

61. A. Mansour, A. Muhammad, **D. S. Han**, and A. Abdel-Wahab, "Photocatalytic reduction of mercury using TiO_2 particles", 3th TAMUQ Annual Research and Industry Forum, Qatar National Convention Center (QNCC), Doha, Qatar, April 7, 2014.
62. H. Hamza, T. Katibe, **D. S. Han**, A. Abdel-Wahab, "Preparation, characterization, and stabilization of silver nanoparticles for biological wastewater treatment", 3th TAMUQ Annual Research and Industry Forum, Qatar National Convention Center (QNCC), Doha, Qatar, April 7, 2014.
63. **D. S. Han**, H. Park, and A. Abdel-Wahab, "Nanostructured photocathodes for selective production of hydrocarbon fuel from carbon dioxide: From half-cell to tandem cell, Track 2: Energy, Water, Safety and the Environment, 3th TAMUQ Annual Research and Industry Forum, Qatar National Convention Center (QNCC), Doha, Qatar, April 7, 2014.
64. A. Muhammad, **D. S. Han**, A. Abdel-Wahab, "Photocatalytic degradation of organic pollutant using nanostructured titania: Titania nanotube, titania nanorod, and Pd or N-doped titania", Student Presentations: Building Capacity Through Research, 3th TAMUQ Annual Research and Industry Forum, Qatar National Convention Center (QNCC), Doha, Qatar, April 7, 2014.
65. M. Orillano, **D. S. Han**, A. Khodary, B. Batchelor, A. Abdel-Wahab, "Reactive nanoparticle-supported dead-end flow ultrafiltration for removal of mercury from water: Effect of solution composition", Qatar Foundation Annual Research Conference (QF-ARC), Qatar National Convention Center, Doha, Qatar, Nov. 24-25, 2013.
66. Y. Duan, **D. S. Han**, B. Batchelor, A. Abdel-Wahab, "Synthesis, characterization, and application of pyrite for removal of mercury", Qatar Foundation Annual Research Conference (QF-ARC), Qatar National Convention Center, Doha, Qatar, Nov. 24-25, 2013.
67. **D. S. Han**, S. K. Choi, U. Kang, H. W. Jung, S. Lee, S. Choi, H. Park, A. Abdel-Wahab, "Conversion of carbon dioxide to useful fuels using photoelectrochemical technology", Qatar Foundation Annual Research Conference (QF-ARC), Qatar National Convention Center, Doha, Qatar, Nov. 24-25, 2013.
68. A. Muhammad, **D. S. Han**, U. Kang, H. Park, A. Abdel-Wahab, "Different kinetic degradation of methyl orange by nanostructured titania: Titania nanotube, titania nanofiber, and titania nanoparticle", Qatar Foundation Annual Research Conference (QF-ARC), Qatar National Convention Center, Doha, Qatar, Nov. 24-25, 2013.
69. S. Kim, **D. S. Han**, A. Abdel-Wahab, and H. Park, "Heterojunction electrodes for photon harvesting and simultaneous storage", 4th International Conference on Semiconductor Photochemistry, Prague, Czech Republic, June 23-27, 2013.
70. **D. S. Han**, A. Khodary, M. Orillano, B. Batchelor, and A. Abdel-Wahab, "Continuous contact method for removal of mercury in water using nanoparticle iron sulfide", 2nd TAMUQ Annual Research and Industry Forum, Qatar National Convention Center (QNCC), Doha, Qatar, April 22, 2013.
71. **D. S. Han**, C. Lee, S. Park, B. Batchelor, and A. Abdel-Wahab, "Degradation of perchlorate in water using Zero-Valent Titanium (ZVT): Kinetics, membrane separation, and electrochemistry,

2nd TAMUQ Annual Research and Industry Forum, Qatar National Convention Center (QNCC), Doha, Qatar, April 22, 2013.

72. M. Orillano, **D. S. Han**, B. Batchelor, A. Abdel-Wahab, "Removal of mercury from water using reactive iron sulfide-laden cross-flow ultrafiltration membrane", 2nd TAMUQ Annual Research and Industry Forum, Qatar National Convention Center, Doha (QNCC), Doha, Qatar, April 22, 2013.
73. **D. S. Han**, A. Khodary, B. Batchelor, and A. Abdel-Wahab, "Removal of mercury from water using reactive adsorbent/membrane (RAM) hybrid filtration process", International Conference on Advances in Environmental Science and Technology, 1st World Congress on Advances in Civil, Environmental, and Material Research (ACEM '12), COEX, Seoul, Korea, August 26-29, 2012.
74. S. H. Yoon, **D. S. Han**, A. Khodary, B. Batchelor, and A. Abdel-Wahab, "UV-Induced Reductive Degradation of Haloaliphatic Compounds", International Conference on Advances in Environmental Science and Technology, 1st World Congress on Advances in Civil, Environmental, and Material Research (ACEM '12), COEX, Seoul, Korea, August 26-29, 2012.
75. B. Jeong, **D. S. Han**, B. Batchelor, and A. Abdel-Wahab, "Reactive Contact System for Removal of Arsenic in Water Using Iron and Sulfur Containing Environment", International Conference on Advances in Environmental Science and Technology, 1st World Congress on Advances in Civil, Environmental, and Material Research (ACEM '12), COEX, Seoul, Korea, August 26-29, 2012.
76. **D. S. Han**, B. Batchelor, C. Lee, S. H. Park, and A. Abdel-Wahab, "Electrochemistry and Aqueous Chemistry of Zero-Valent Titanium for Removal of Perchlorate in Water", International Conference of Environmental Science and Technology, American Academy of Sciences, Houston, TX, June 25-29, 2012.
77. S. H. Yoon, **D. S. Han**, B. Batchelor, and A. Abdel-Wahab, "Advanced Reduction Process for Degradation of Chlorinated Aliphatic Compounds Using Sulfur Compounds and UV Light", International Conference of Environmental Science and Technology, American Academy of Sciences, Houston, TX, June 25-29, 2012.
78. **D. S. Han**, B. Batchelor, A. Abdel-Wahab, "Sorption of Mercury(II) onto Iron Sulfide (FeS and FeS_2): Reaction Mechanism and Stability", Theme 2: Energy and Environment, Research Showcase at Texas A&M University at Qatar (TAMUQ), Qatar National Conventional Center (QNCC), May 14th, 2012.
79. **D. S. Han**, A. Abdel-Wahab and B. Batchelor, "Treatment of Arsenic in Ash and Scrubber Pond Effluents Using Nanoparticulate Pyrite (FeS_2)", Division of Environmental Chemistry, 239th ACS National Meeting, San Francisco, CA, March 2010.
80. **D. S. Han** and B. Batchelor, "Sorption of Mercury(II) onto Iron Sulfides (FeS and FeS_2): Reaction Mechanism and Stability", Division of Environmental Chemistry, American Chemical Society, 238th ACS National Meeting, Washington, D.C., August 16-20, 2009.
81. **D. S. Han** and B. Batchelor, "Adsorption of Arsenite and Arsenate with Phosphate onto Nanoporous Titania Adsorbents" University Forum in Texas Water Conference, AWWA, San Antonio, TX, March 2008.

82. B. Batchelor, **D. S. Han** and E. J. Kim, "Novel Adsorbents-Reactants for Treatment of Ash and Scrubber Pond Effluents" Workshop on National Energy Technology Laboratory (NETL), Department of Energy (DOE), Pittsburgh, PA, June 2007.
83. **D. S. Han** and B. Batchelor, "Adsorptive Removal of Inorganic Arsenic (As(III) and As(V)) Contaminants from Drinking Water Using Nanotechnology" US-Korea Conference on Science, Technology, and Entrepreneurship, Washington DC, August 2007.
84. **D. S. Han** and B. Batchelor, "Effect of Phosphate on Arsenite Adsorption by Mesoporous Adsorbents Impregnating Nanostructured Titania", Division of Environmental Chemistry, American Chemical Society, 233th National Meeting, Chicago, IL, March 2007.
85. **D. S. Han** and B. Batchelor, "Titanium Functionalized Nanoporous Adsorbents for Arsenic Removal from Water" US-Korea Conference on Science, Technology, and Entrepreneurship, NJ, August 2006.
86. **D. S. Han** and B. Batchelor, "Adsorption of As(III) on Mesoporous Titania and Ti-Containing Mesoporous Silica Molecular Sieve", Division of Environmental Chemistry, American Chemical Society, 232th National Meeting, San Francisco, CA, September 2006.
87. **D. S. Han** and B. Batchelor, "Adsorption Behavior of Arsenic on Highly Ordered Mesoporous Solids with Nano-Scaled titania reactive Sites", Annual Conference of the AWWA, San Antonio, TX, June 2006.
88. **D. S. Han** and S. W. Park, "The Reductive dehalogenation of carbon tetrachloride in the presence of FeS/FeS_2 as affected by hydrophobic sites." Proceedings, *The Korean Environmental Sciences Society*, pp104, Spring 1998.
89. **D. S. Han** and S. W. Park, "Transformation of halogenated aliphatic compounds by the reductive dehalogenation process." Proceedings, *The Korean Environmental Sciences Society*, pp104, Fall 1998.
90. **D. S. Han** and S. W. Park, "Detoxification of chlorinated chemicals by the reductive dehalogenation process." Proceedings, *The Korean Environmental Sciences Society*, p 128, Spring 1998.
91. H. S. Jang, **D. S. Han**, S. W. Park. "Removal of organic compounds by the organic anthtracite." Proceedings*, Korean Society of Environmental Engineers*, p 596, Fall 1997.

PEER-REVIEWED PUBLICATIONS
(Impact factor is updated as of 2017)

1. S. Y. Yang, H. Jung, B. Kim, **D. S. Han**, W. Choi, H. Park, "Electrocatalytic cogeneration of reactive oxygen species for synergistic water treatment", *Chemical Engineering Journal*, (2018), 358, 497. (IF=6.745)
2. R. R. Gonzales, M. J. Park, L Tijing, **D. S. Han**, S. Phuntsho, H. K. Shon*, "Modification of nanofiber support layer for thin film composite forward osmosis membranes via layer-by-layer photoelectrolyte deposition", Membranes, (2018), 8, 70.
3. C. Lee, **D. S. Han**, A. Abdel-Wahab, S.H. Park*, "Chloride removal from industrial cooling water using a two-stage ultra-high lime with aluminum process", Desalination and Water Treatment, (2018), 120, 228-233. (IF=1.631)

4. D. Shetty, T. Skorjanc, J. Raya, S. Sharma, I. Jahovic, K. Polychronopoulou, **D. S. Han**, S. Degawe, J-C, Olsen, R. Jagannathan, S. Kirmizialtin, A. Trabolsi*, "Calix[4]arene-based Porous Organic Nanosheets", *ACS Applied Materials & Interface*, (2018), 10, 17359-17365. (IF 7.504)
5. T. Skorjanc, D. Shetty, S. Sharma, J. Raya, H. Traboulsi, **D. S. Han**, J. Lalla, R. Newlon, R. Jagannathan, S. Kirmizialtin, J-C Olsen, A. Trabolsi, "Redox-responsive covalent organic nanosheets from viologens and calix[4]arene for iodine and toxic dye capture", Chemistry-A European Journal, (2018), 24, 8648-8655. (IF 5.317)
6. **D. S. Han***, R. Elshorafa, S. H. Yoon, S. Kim, H. Park, A. Abdel-Wahab, "Sunlight-charged heterojunction TiO_2 and WO_3 particle-embedded inorganic membranes for nighttime environmental applications", *Photochemical & Photobiological Sciences, (2018)*, 17, 491. (IF 2.344)
7. H.W. Jeong, K. J. Park, **D. S. Han**, H. Park, "High efficiency solar chemical conversion using electrochemically disordered titania nanotube arrays transplanted onto transparent conductive oxide electrodes", *Applied Catalysis B: Environmental*, (2018), 226, 194-201. (IF 9.446)
8. Y. Liu, W. Choi, J-H. Hsu, J. Tan, **D. S. Han**, A. Han, A. Abdel-Wahab, C. Yu, "High-performance reverse osmosis membrane enabled by nanofillers and surface modifications", *Environmental Science: Water Research & Technology*, (2018), 4, 411-420. (IF 2.817)
9. S. H. Yoon, **D. S. Han***, U. Kang, S. Y. Choi, W. Yiming, A. Abdel-Wahab, H. Park, "Effects of electrochemical synthetic conditions on the surface property and photocatalytic performance of copper and iron-mixed p-type oxide electrodes", *J. Materials Science and Technology,* (2018), 34, 1503-1510. (IF 2.764)
10. S. Kim, G. Pio, **D. S. Han**, H. Shon, H. Park, "Solar desalination coupled with water remediation coupled with molecular hydrogen production: A novel solar water-energy nexus", *Energy and Environmental Science*, (2018), 11, 344-353. (IF 29.518) (***Selected as Front Cover Page***).
11. K. Wang, **D. S. Han**, W. Yiming, S. Ahzi, A. Abdel, Z. Liu*, "A windable and stretchable three-dimensional all-inorganic membrane for efficient oil/water separation", *Scientific Reports,* (2017), 7(1), 16081. (IF 4.259)
12. D. Shetty, J. Raya, **D. S. Han**, Z. Asfari, J-C. Olsen, A. Trabolsi*, "Lithiated polycalix[4]arenes for efficient adsorption of iodine from solution and vapor phases", *Chemistry of Materials*, (2017), 29(21), 8968-8972. (IF 9.466)
13. G. Das, T. Skorjanc, S. K. Sharma, T. Prakasam, C. Platas-Iglesias, **D. S. Han**, J. Raya, J-C. Olsen, A. Trabolsi*, "Morphological diversity in nanoporous covalent organic materials derived from viologen and pyrene", *ChemNanoMat*, (2017), 4, 61-65. (IF 2.937)
14. V. H. Tran, S. Phuntsho, H. Park, **D. S. Han***, H. Shon*, "Sulfur-containing air pollutants as draw solution for fertilizer drawn forward osmosis process for fertigation", *Desalination*, (2017), 424. 1-9. (IF 5.527).
15. U. Kang, K. J. Park, **D. S. Han**, Y.M. Kim, S. Kim, H. Park*, "Photoelectrochemical hydrogen production using CdS nanoparticles photodeposited onto Li-ion-inserted titania nanotube arrays", C*atalysis Today*, (2017), 303, 289-295. (IF 4.636)

16. S. Yoon, R. ElShorafa, M. Katbeth, **D.S. Han***, H.W. Jeong, H. Park, and A. Abdel-Wahab, "Effect of shape-driven intrinsic surface defects on photocatalytic activities of titanium dioxide in environmental application", *Applied Surface Science,* 423, (2017), 71-77. (IF 3.387)
17. G. Das, T. Skorjanc, S. K. Sharma, F. Gandara, M. Lusi, D. S. S. Rao, S. Vimala, S. K. Prasad, F. Ravaux, J. Raya, **D. S. Han**, R. Jagannathan, J. Olesen, A. Trabolsi*, "Viologen-based conjugated covalent organic networks via zincke reaction", *Journal of American Chemical Society*, (2017), 139(28), 9558-9565. (IF: 13.858)
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The Journal of Physical Chemistry C; Journal of Environmental Engineering; Separation Science and Technology; Desalination and Water Treatment; Applied Catalysis, B. Environmental; Materials Science in Semiconductor Processing; Environmental Science and Pollution Research; Industrial & Engineering Chemistry Research; Catalysis Today