

## Greetings from the President

Dear CAPEES members,

With the preparation of the semester end, I hope you had a fruitful 2014.

Our CAPEES for sure had a very exciting year. I am very glad that CAPEES is continuing to gain great recognition from the Environmental Engineering and Science community around the globe, and our membership has grown by another 20 percent in 2014.

As I mentioned in the last letter, the success of CAPEES started with a small conference gathering 7 years ago. In this summer, more than 70 people gathered during the 248th ACS Conference in San Francisco to celebrate the distinguished academic and education career of Professor Chin-Pao Huang, Donald C. Phillips Professor & Francis Alison Professor at the University of Delaware. Professor Huang is a founding member of CAPEES, a renowned scholar in environmental science, and a role model and mentor for many young Chinese scientists and engineers around the world. We celebrate Professor Huang's career because he was really a pioneer as a Chinese-American to become a successful scholar in Environmental Engineering and Science, and his legacy and accomplishments have inspired so many of us to pursue a similar career in this promising field. The symposium was a great success, and I want to thank professors Jiamin Wang (Missouri S&T) and Baolin Deng (U Missouri) for their great organization, as well as the anonymous donor, who provided generous financial support for the banquet dinner.

In July, I was invited to give a presentation about CAPEES in the 2<sup>nd</sup> IWA China Young Water Professionals Conference in Harbin. IWA China YWP is a vibrant organization with members from both academia and industry, and it organizes various activities including career planning seminars, academic symposiums, and even hiking trips to connect young water professionals together. My presentation received very positive feedbacks, and follow-up discussions have been initiated to develop joint conferences and programs between CAPEES and YWP in the near future, either in the U.S. or in China, so stay tuned.



In 2013, CAPEES organized a very successful workshop focusing on US-China academic collaboration during the 50<sup>th</sup> AEESP conference at Colorado School of Mines. More than 60 faculty and students participated in the workshop and the dinner gathering. Following this success, CAPEES was invited to organize another workshop before the 2015 AEESP conference at Yale University, and the organizing committee is working on inviting speakers from China and US funding agencies and research institutions. We welcome any suggestion and comment on how to make it another successful event for the community.

In this issue, we feature four professors and new members with different research expertise. They are Dr. Wenqing Xu (Villanova University, USA), Dr. Junhua Li (Tsinghua University, China), Dr. Jun Wang (University of Oklahoma, USA), and Dr. Bin Cao (Nanyang Technological University, Singapore). We also collected as much as conference and funding information and opportunities for you to consider.

I want to thank you for your continued support during this past year, and looking forward, we are fortunate to welcome Professor Baolin Deng (University of Missouri) to serve as the 2015 President, and Professor Huichun (Judy) Zhang (Temple University) to serve as the President-elect. We are in the planning of several new initiatives including Best Paper Award and others, and we hope to invite more members to join the fabulous CAPEES officer team (see bottom of this page). Please let me and Baolin know if you are interested and willing to serve this great community.

Hope you have a great holiday season!

Zhiyong (Jason) Ren/任智勇  
CAPEES 2014 President  
Associate Professor of Environmental Engineering  
University of Colorado Boulder



**Editors: Zhen (Jason) He/贺震, Xingmao (Samuel) Ma/马兴茂**

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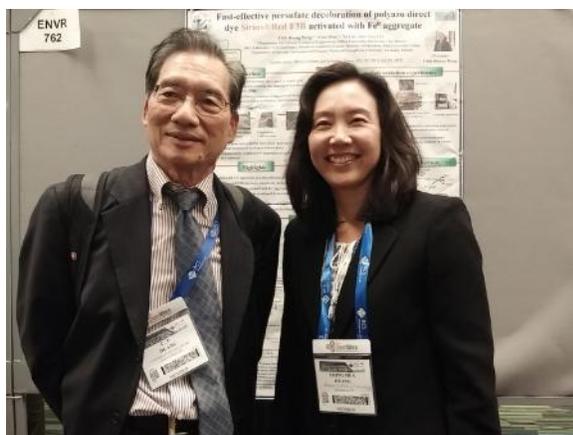
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## Member and Society News

### CAPEES Sponsors Banquet in Honor of Professor C.P. Huang on ACS Meeting in San Francisco

On the 248th ACS National Meeting & Exposition in San Francisco, CA, August 10-14, 2014, a two-day symposium was held in honor of Professor Chin-Pao Huang for his distinguished academic and education career. The symposium, titled "Thermodynamics and Kinetics in Treatment Processes, Past, Present, and Future", draw a wide interest across the world with more than 30 oral presentations plus a poster session with approximately 30 posters. It featured four invited speakers including Prof. Michael Hoffmann from Caltech, Prof. Bill Cooper from NSF, Prof. Craig Adams from Utah State, and Prof. Alan Stone from Johns Hopkins. A keynote speech was given by Prof. Huang on the recent advances in catalytic-electrochemical and photo-electrochemical reactions for water purification and beyond.

As part of this special symposium, CAPEES organized a banquet to celebrate CP's achievements with generous financial supports by an anonymous donor. Approximately 70 of CP's students, friends, and colleagues showed up for the dinner. Among them were over a dozen CAPEES members: Yongsheng Chen, Pei Chiu, Baolin Deng, Bin Hua, Ching-Hua Huang, Xu Li, Shihong Lin, Yang Liu, Baoxia Mi, Jianmin Wang, Yuefeng Xue, Weile Yan, Jia Yang, Judy Zhang, and Xiangru Zhang. Dr. Huang is the Donald C. Phillips Professor & Francis Alison Professor at the University of Delaware. He played a major role for the establishment of CAPEES and has been a respected advisor for the organization. Dr. Huang is not only a well-established scholar with more than 200 peer-reviewed journal papers and numerous books and book chapters to his credit, but also a great mentor as the major supervisor for more than 40 PhD and 60 MS students - more than 20 of his PhD students are faculty members over the world. He has made significant impact in areas of environmental chemistry, environmental engineering, and environmental nanotechnology.



**Editors:** Zhen (Jason) He/贺震, Xingmao (Samuel) Ma/马兴茂

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## Dr. Xu started a new NSF project “Water Scarcity Risk for the Global Trade Network”

A new project entitled “Water Scarcity Risk for the Global Trade Network” was recently awarded to the University of Michigan (PI: Ming Xu) by the National Science Foundation. The project aims to develop an integrated analytical framework to evaluate water scarcity risks for industries with global supply chains. The results are expected to help businesses to develop strategies to mitigate water scarcity risks and contribute to global water conservation. More details can be found at <http://goo.gl/EvxxDW>, <http://complexsustainability.snre.umich.edu>, or [mingxu@umich.edu](mailto:mingxu@umich.edu).

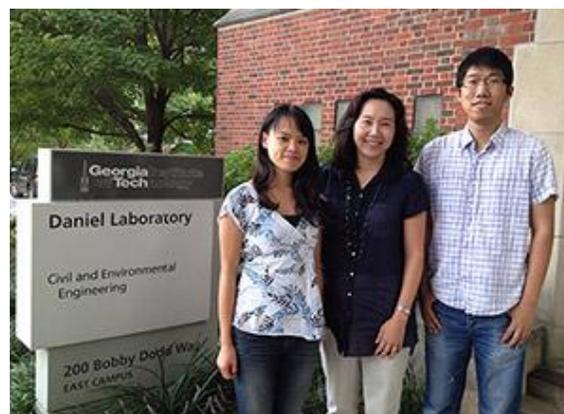
## Dr. Zhou was promoted to Full Professor and started new grant projects

Dr. Jianpeng Zhou, the Chair of Civil Engineering Department at Southern Illinois University Edwardsville (SIUE), was promoted to full professor in spring 2014. He and his colleague at SIUE started a three-year major grant from Illinois Department of Transportation to study the effectiveness of post-construction best management practices (BMPs) for stormwater runoff control. The project involves in extensive watershed-based modeling for integrated performance analysis of BMPs. In addition, Dr. Zhou is part of the SIUE team that just received a nearly \$10 million grant from the U.S. Department of Labor for establishing transformative career pathways in the fields of bioprocessing and water management. Dr. Zhou was a past president of CAPEES.

## Dr. Huang wins 2014 North American Chemist Award

The Society of Environmental Toxicology and Chemistry has named Professor Ching-Hua Huang its 2014 North American Chemist. Huang is a professor in the School of Civil and Environmental Engineering at Georgia Tech, and she has been leading an active environmental chemistry research program for more than 14 years. In particular, she has conducted extensive research on the environmental fate and transformation mechanisms of emerging contaminants such as pharmaceuticals and endocrine disruptors as well as the development of advanced treatment technologies for mitigation of these micropollutants. In addition, she has been actively involved in other topics including the formation and control of emerging

disinfection byproducts in water and food as well as remediation of heavy metals in energy production wastes. Huang will travel with two of her students to Vancouver in November to present their research at the society’s annual meeting, and she will present a study on the interactions of tetracycline antibiotics with Fe(II)/Fe(III) ions and the induced transformation reactions for both the organic and metal species, which have significant implications for their environmental fate.



## Dr. Ma will join Texas A&M University, College Station

Dr. Xingmao (Samuel) Ma, an associate professor at Southern Illinois University Carbondale, is moving to College Station, TX to join the Zachry Department of Civil Engineering at Texas A & M University in Jan, 2015. He is one of the co-editors of the CAPEES newsletter and a board member of CAPEES since 2012. His expertise is on the biogeochemistry of emerging environmental contaminants including engineered nanomaterials and plant-based remediation and ecosystem restoration technologies.

## Dr. Boufadel is graduating a very productive PhD

Geng, who will earn his Ph.D. in environmental engineering on May 20, worked as a research assistant for Professor Michel Boufadel at New Jersey Institute of Technology, who directs the Center for Natural Resource Development and Protection. Geng has published 10 peer-reviewed articles from his research, and the story about this productive PhD student can be found here: <http://www.njit.edu/features/student/geng.php>

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## Upcoming Conferences

### **The 3<sup>rd</sup> Water Research Conference Shenzhen, China**

The 3rd Water Research Conference aims to present results of state-of-the-art exploration in water/wastewater treatment and discuss conceptually novel ideas that are necessary to develop well-tuned energy- and resource-efficient treatment technologies designed to remove a wide range of known and emerging pollutants and/or to recover all useful resources like chemicals, nutrients, energy and water itself.

<http://www.waterresearchconference.com/>

### **12th IWA Leading Edge Conference on Water and Wastewater Technologies May 30-June 3, 2015, HongKong, China**

The 12th IWA Leading Edge Conference on Water and Wastewater Technologies is designed to be the place where new ideas are introduced and the opportunity is provided to interact with the "best of the best". Hong Kong, a world unique and dynamic Asian city not only showcases mega scale practice of integrated dual water management, but also presents the latest development of new wastewater treatment technology from pilot to full scale.

<http://let2015.org/>

### **WEF/IWA Residuals and Biosolids Conference 7-10 June 2015, Washington D.C**

Management of residuals and biosolids throughout the world has never been more challenging or dynamic as it is today. As science and technologies continue development to meet ever changing regulatory and environmental requirements and goals, the next generation of residuals and biosolids management is rapidly advancing. Residuals and biosolids management strategies encompassing nutrient and resource recovery, new stabilization methods, and energy recovery are at the forefront of many agency's planning processes as infrastructure upgrades and expansions are planned. Effective communication and outreach is also an essential component in the development of successful and sustainable residuals and biosolids management programs.

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<http://www.residualsbiosolids-wefiwa.org/>

### **Water and Energy 2015: Opportunities for Energy and Resource Recovery in the Changing World June 8-10, Washington D.C**

The European Water Association, Japan Sewage Works Association, and the Water Environment Federation are pleased to announce the Water and Energy 2015 Conference in Washington, DC. These organizations are dedicated to collaboration on key issues such as opportunities for energy and resource recovery in our modern changing world.

- Energy Recovery
- Energy Management
- Climate Change Issues
- Resource Recovery

<http://www.wef.org/WaterEnergy/>

### **2015 AEESP Research and Education Conference June 13-16, 2015, in New Haven, Connecticut**

AEESP is pleased to announce that Yale University will host the 2015 AEESP Research and Education Conference on June 13-16, 2015, in New Haven, Connecticut. The 2015 Conference, "Environmental Engineering and Science: At the Nexus," will provide faculty and students with exceptional opportunities to engage in this emerging field of interdisciplinary research.

<http://www.aeesp.org/conference>

### **The 5<sup>th</sup> Meeting of the International Society for Microbial Electrochemistry and Technology (ISMET) October 1-4, 2015, Tempe, Arizona**

We invite you to the 5th international meeting on microbial electrochemistry and technologies. This conference was previously called "Microbial Fuel Cell Meeting", but is now for the first time organized under the umbrella of the International Society for Microbial Electrochemistry and Technology.

<http://www.ismet2015.org/>

## Funding Opportunities

### The SERDP FY 2016 solicitations

Environmental Research and Development Program (SERDP) is seeking to fund environmental research and development proposals. SERDP is DoD's environmental science and technology program, planned and executed in partnership with the Department of Energy and the Environmental Protection Agency, with participation by numerous other Federal and non-Federal organizations. The Program invests across the broad spectrum of basic and applied research, as well as advanced development.

<https://www.serdp-estcp.org/Funding-Opportunities/SERDP-Solicitations>

### EPA Funding Opportunity: Water Quality Benefits

The U.S. Environmental Protection Agency (EPA), as part of its Science to Achieve Results (STAR) program, is seeking applications proposing research to advance knowledge of how changes in water quality, including incremental or step improvements, can be valued at appropriate spatial scales using advanced non-use valuation methods for the Nation's inland fresh water small streams, lakes and rivers, estuaries, coastal waters, and the Great Lakes. For purposes of this Request for Applications (RFA), small streams are defined as streams that are perennial and wadeable.

<http://epa.gov/ncsr/rfa/2015/2015-star-water-quality.html>

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## Featured Member

### Dr. Wenqing Xu/徐文青

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#### 1. *Can you share with us about your career path?*

Being raised in northwestern China, I witnessed my family stockpiling water in order to flush the toilets due to a scarcity of water. I also vividly remember black dust deposits on my face masks that I wore whenever I was outdoors. As a result of my childhood experiences, I enrolled in an environmental engineering degree at Nankai University in Tianjin. After graduating from college in 2007, I came to Johns Hopkins University to pursue my master degree, where I discovered the allure of environmental chemistry. The ability of applying knowledge from textbooks to predict the behavior of pollutants in the environment and validating these hypotheses using advanced technologies was eye opening and empowering, which ultimately led me to further pursue a doctoral degree at Yale University in 2009. During the course of my PhD, I became more and more passionate about being a teacher and researcher everyday. And fortunately enough, I got a job offer upon my graduation in 2014 as an assistant professor at Villanova University.

#### 2. *Can you share with us about your current research areas, interests, and projects?*

My research interest builds upon the fundamental understanding of environmental interfacial chemistry, with the goal of applying them to both natural and engineered systems to address today's environmental challenges. The ultimate goal of my research is to transform fundamental environmental interfacial chemistry knowledge into solutions for safe drinking water, nutrient recovery, and mitigating climate change. Below is a list of ongoing projects: a) Engineering sorbents for contaminants removal in soil and ground water, b) Evaluating N-DBPs (Disinfection By-Products) formation potential from impaired water sources, and c) Mitigating climate change using biochars. I am looking for collaborations and please let me know if you see any synergies in any of the topics.

#### 3. *Can you share with us about what courses you normally teach?*

I teach two undergraduate courses for this year: a) Water and Wastewater Treatment, b) Environmental Engineering Science. And I will be more than happy to share my teaching materials and notes with you all. Down the road, I will be teaching aquatic chemistry and Physical and Chemical Treatment Processes at graduate level.

#### 4. *Can you share with us about your professional activities?*

The Association of Environmental Engineering and Science Professors (AEESP) American Chemical Society (ACS) American Society for Engineering Education (ASEE) Chinese-American Professors in Environmental Engineering and Science (CAPEES)

#### 5. *Can you briefly describe major attractions and cultural environment of your area and/or community?*

Villanova University is only 20 to 30 minutes away from Philadelphia by train. And we have a train station on campus. You won't believe how on time the train is if you are used to taking the Amtrak. I believe that I don't have to convince you how many great things you can do in Philadelphia. The neighborhood itself at Villanova is really pretty and quite safe. Coming from New haven, I really do appreciate it the freedom of being able to walk outside pretty much any time. Villanova is a catholic school and we emphasize a lot on building the community and care for each other. I really felt welcomed in the community and people are trying to help me succeed.

#### 6. *Can you share with us your thoughts on key factors that lead to your career today?*

I was born in a middle-class family in China. Not affluent in money, my family taught me the most important assets in life: hard work, integrity, and compassion. My father constantly told me: hard work earns you bread, integrity earns you respect, and compassion means you never lose your connection to humanity. Throughout the years, these principles have been my guide. I love both research and teaching. And I think being a professor is the best job in the world.

#### 7. *What suggestions would you like to offer to our members about career, balance between work and life, and other subjects of interests?*

To be quite frankly, I am still in the process of figuring it out myself. I started my position late August this year. The first few weeks were overwhelming and stressful. I think try to be more patient and stay positive definitely helped me. I believe that it will be constant adjustments when it comes to balancing work and life. It might be a different recipe at different phase of life.

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## Dr. Junhua Li/李俊华

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### 1. *Can you share with us about your career path?*

I am a Professor in School of Environment, Tsinghua University. I received my Bachelor degree from the Department of Chemistry at Jilin University in 1992. After that I obtained my Doctor degree in Environmental Engineering from the Institute of Atomic Energy of China in 2001. Then I joined Tsinghua University to work on the Air pollution chemistry and control technology. During March 2008 to August 2009, I was a visiting professor in School of Engineering at University of Michigan.

### 2. *Can you share with us about your current research areas, interests, and projects?*

My research is mainly on air pollution chemistry and control technology. In the field of air pollution control, I am developing air pollution control technologies which widely applied in purifying air pollutants from stationary and mobile source. I focus on removing combustion pollutants, such as NO, SO<sub>2</sub>, VOCs and Hg, which is basis on the principle of Environmental Catalysis and Adsorbent Materials. In the field of atmosphere chemistry, my researches is including the observation of air pollution complex, and try to explain the formation mechanism of haze based on using smog chamber and modelling. At present, I am undertaken over 10 projects, and half of our projects are from National foundation (NSFC, MOST), and half of them from domestic industry and international companies (e.g. Toyota and Ford ...).

### 3. *Can you share with us about what courses you normally teach?*

Atmosphere Chemistry and Physics.  
Introduction to Environmental Engineering  
Professional Field Trips

### 4. *Can you share with us about your professional activities?*

Editorial board Member for J. Environ. Sci., and Fron. Environ. Sci. Eng.

Professional member, Society of Automotive Engineers, American Chemical Society

Vice Chairman, IEEE Green Power Generation Industry Connection

Secretary General of the DeNO<sub>x</sub> technology innovation alliance of China

China Experts Panel on Pollution Control of Power Station

Member of Atmosphere Chemistry Committee of China

### 5. *Can you briefly describe major attractions and cultural environment of your area and/or community? What draw you to where you live other than job and study?*

Beijing is the Capital of China, and Tsinghua is one top University in China.

It is much opportunity to supervise the outstanding students and cooperate with famous institutes and companies in all over the world. Anyway, you know Beijing is not very nice place to live and enjoy life. Air quality is still a big challenge in Beijing, and we are still on road.



### 6. *Can you share with us your thoughts on key factors that lead to your career today?*

Chemistry is one of the fundamental sciences, and it is crucial to resolve the environmental pollutants. To control of air pollutants on basis of principle of adsorption and catalysis is good option, and lead me to teach and work on this field.

### 7. *What suggestions would you like to offer to our members about career, balance between work and life, and other subjects of interests?*

It is difficult to balance of work and life, although most people say that work hard is for better life. A best way to balance is far away to internet and cellphone on weekend. It is true that my supervisor in UM has no cellphone now, I believe his life is flexible.

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## Dr. Jun Wang/王君

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### 1. Can you share with us about your career path?

After getting my B.S. and M.S. degree in environmental field from Nankai University, I moved to the States side with my wife in 09. I started my Ph.D. training in the Department of Environmental Engineering and Sciences at the University of Florida. The state of Florida has so many attractions, that I thought I would never graduate. Just joking, I finished my Ph.D. study in 2013 and started my independent investigator career at the Department of Occupational and Environmental Health, the University of Oklahoma.

### 2. Can you share with us about your current research areas, interests, and projects?

My research landscape is built based on the exposure assessment, health effects study, and engineering control development of all airborne hazards in the occupational and general ambient environment. The laboratory I established here is focused on aerosol/particles. The current on-going projects include metallic aerosol formation from welding and cutting process, speciated VOCs emission from low-cost desktop 3-D printer, vaping aerosols from e-cigar, and occupational risks among food truck workers. Some of the projects are funded through EPA, local tobacco settlement fund. Some of them are pending grants with CDC/NIOSH and NIEHS. In addition, I am looking to develop my CAREER proposal in the next three years.

### 3. Can you share with us about what courses you normally teach?

Although the department does not initially assign me a lot of teaching load as junior faculty, I do like teaching a lot and asked for more in my capacity. Currently I am teaching the online version of "Environmental Health" core course, and two graduate-level courses, namely "Environmental Toxicology" and "Industrial Hazards Control". I am also developing a doctoral-level course "Applied Modeling in Occupational and Environmental Health research", which will be offered Fall 2015 at earliest.

### 4. Can you share with us about your professional activities?

I am primarily involved in working groups and conference committees in the American Association for Aerosol Research (AAAR), as well as the American Industrial Hygiene Association (AIHA). Besides that, I do occasionally attend conferences hosted by the American Waste & Management Association(A&WMA), the Society of Toxicology (SOT), the International Society of Exposure Science (ISES).

### 5. Can you briefly describe major attractions and cultural environment of your area and/or community? What draw you to where you live other than job and study?

The health sciences campus of the University of Oklahoma is located in the heart of Oklahoma City (OKC), three-hour drive north from Dallas. The city is booming from energy sectors, hosting some giant energy companies such as Devon, Chesapeake, and Phillips 66. The NBA team Thunders moved here in 2010 and already reached semi-final almost every year. The city is still undergoing a lot of development and expected to be an oil & gas capital in central US. My family lives in a small and nice town Edmond, to the north of OKC. We love the atmosphere here and already made a lot of friends.



### 6. Can you share with us your thoughts on key factors that lead to your career today?

Preparedness, always prepare before luck hit you. When I was a graduate student, I know what I want and what my career path should be shaped like. So I observe, ask, learn from my advisors and other senior faculties. Finally, I can grab the opportunity when it comes to me.

### 7. What suggestions would you like to offer to our members about career, balance between work and life, and other subjects of interests?

I know we young Chinese-American professors work hard for grants, publications, students, and classes. By the time you retired, they are just some numbers, while your children will in their mid-life and have their own life. So why not enjoy the moments now, when you children can still crawl around you, and you family can still go places in the same car.



(Photo: my daughter Cici)

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## Dr. Bin CAO / 曹彬

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### 1. *Can you share with us about your career path?*

I joined Nanyang Technological University in Singapore as an assistant professor in Dec 2011. Before that, I was a postdoctoral researcher in the Pacific Northwest National Laboratory and Washington State University. I obtained my B.Eng. in Materials Sciences and Engineering from Beijing University of Aeronautics and Astronautics. Then I obtained my Ph.D. in Chemical and Biomolecular Engineering from National University of Singapore in May 2008.

### 2. *Can you share with us about your current research areas, interests, and projects?*

My research is at the interface between environmental engineering and microbiology, focusing on applied fundamentals of biofilms and biofilm-based environmental biotechnology for water, energy, and public health applications with an ultimate goal of promoting a sustainable development of our society. Here are several examples of my research projects: (i) biofilms on mineral surfaces and microbe/mineral interactions in aquatic ecosystems; (ii) biofilm/contaminant interactions in biofilm-based treatment of polluted water; (iii) novel approaches to promote beneficial biofilms and to control detrimental biofilms. I have also actively collaborated with colleagues with different expertise to work on topics including biofilms in bioelectrochemical systems and microfluidic devices.

### 3. *Can you share with us about what courses you normally teach?*

Environmental Biology and Microbiology (2nd year undergraduate)  
Sustainability Practices in Urban and Marine Environment (1st year undergraduate)

Environmental Issues in a Changing World (2nd year undergraduate)

### 4. *Can you share with us about your professional activities?*

AIChE, ISME, ACS, AEESP, ASM

### 5. *Can you briefly describe major attractions and cultural environment of your area and/or community? What draw you to where you live other than job and study? A photo would be great.*

Singapore, a “little red dot” on the world map, is a bustling cosmopolitan city state populated with high-rise buildings and landscape gardens, known as “city of gardens” and the “lion city”. Singapore is a popular holiday destination and a highly-lauded destination in Asia. One interesting facet about Singapore is the harmonious blend of culture, cuisine, arts and architecture. One thing that may strike you most about Singapore is its multifarious offering of food – day or night, a range of dining options from Peranakan to Chinese, Indian to Malay, fusion and more. There are numerous shopping malls, in particular, at the iconic Orchard Road stretch and a myriad selection of nightlife activities at the Clarke Quay or Boat Quay areas. Singapore is my 2nd hometown and I have spent quite a number of years here. Drop by and I’ll be a good guide.

### 6. *Can you share with us your thoughts on key factors that lead to your career today?*

Interest, persistence, and a heart of appreciation.

### 7. *What suggestions would you like to offer to our members about career, balance between work and life, and other subjects of interests?*

What I usually do is to prioritize my To-Do list. I find it really hard to balance them all. This is something I am still learning from some well-established professors.

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