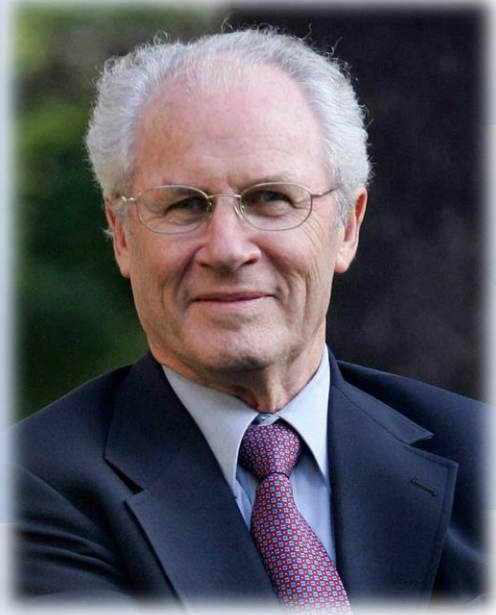


# iFAST Symposium Environmental Biotechnology

*To celebrate Professor Perry L. McCarty's 90th birthday and honor his outstanding contributions to environmental biotechnology*

Professor Perry L. McCarty is Silas H. Palmer Professor Emeritus at Stanford University. The focus of his research and teaching has been on water with primary interest in biological processes for the control of environmental contaminants. His early research was on anaerobic treatment processes, biological processes for nitrogen removal, and water reuse. Current interests are on aerobic and anaerobic biological processes for treatment of domestic wastewaters, and movement, fate and control of groundwater contaminants. He has hundreds of publications and is coauthor of the textbooks, *Chemistry for Environmental Engineering and Science*, and *Environmental Biotechnology - Principles and Applications*. He was elected to membership in the National Academy of Engineering in 1977 and the American Academy of Arts and Sciences in 1996. He received the John and Alice Tyler Prize for Environmental Achievement in 1992, the Athalie Richardson Irvine Clarke Prize for Outstanding Achievements in Water Science and Technology in 1997, and the Stockholm Water Prize in 2007.



Thu  
**Dec  
16**

Fri  
**Dec  
17**

Sat  
**Dec  
18**

**10 a.m. – 12:30 p.m. EST**  
**3 – 5:30 p.m. GMT**  
**11 p.m. – 1:30 a.m. China**

— Speakers —

**Bruce Rittmann**  
**Alison Cupples**  
**Pedro Alvarez**  
**Yujie Men**  
**Shaily Mahendra**  
**Robert Nerenberg**  
**Ania Ulrich**  
**Junko Munakata-Marr**

**Craig Criddle**  
**David Freedman**  
**Donna Fennell**  
**Anca Deigado**  
**Lew Semprini**  
**Molly Morse**  
**Gonzalo Pizarro**  
**Joseph Hughes**

**Elizabeth Edwards**  
**Ken Williamson**  
**Richard Speece**  
**Lutgarde Raskin**  
**Jaeho Bae**  
**Chungheon Shin**  
**Perry McCarty**

## Organizing committee



**Bruce Rittmann** **Kenneth Williamson** **Craig Criddle** **Jaeho Bae** **Elizabeth Edwards** **Alison Cupples**

**Zoom Link - <https://zoom.us/j/93481422012>**

**Symposium website - <https://www.ou.edu/ieg/seminars/ifast2112>**

iFAST series chair: **Jizhong Zhou** (University of Oklahoma, USA), **Xueduan Liu** (Central South University, China)

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THE UNIVERSITY OF OKLAHOMA



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Dec. 16, 2021

Dec  
16

10 a.m.	Introduction to Perry and the Symposium: <b>Bruce Rittmann</b>	Arizona State University, U.S.
10:10 a.m.	Keynote: <b>Bruce Rittmann</b>	Arizona State University, U.S.
	<b>How ammonium-oxidizing bacteria (AOB) breathe and why they produce nitrous oxide (N<sub>2</sub>O)</b>	
10:35 a.m.	<b>Alison Cupples</b>	Michigan State University, U.S.
	<b>Examining the black box of contaminant biodegradation</b>	
10:50 a.m.	<b>Pedro Alvarez</b>	Rice University, U.S.
	<b>A renaissance for phage-based biocontrol</b>	
11:05 a.m.	<b>Yujie Men</b>	University of California, Riverside, U.S.
	<b>How powerful microorganisms can act in good and bad ways when facing environmental contaminants</b>	
11:20 a.m.	10-minute break	
11:30 a.m.	<b>Shaily Mahendra</b>	University of California, Los Angeles, U.S.
	<b>Enzymes packaged in vault nanoparticles: a platform technology for industrial and environmental applications</b>	
11:45 a.m.	<b>Robert Nerenberg</b>	University of Notre Dame, U.S.
	<b>Counter-diffusional biofilms: unique behavior, unique opportunities</b>	
Noon	<b>Ania Ulrich</b>	University of Alberta, Canada
	<b>Environmental Engineering: where people and place matter</b>	
12:15 p.m.	<b>Junko Munakata-Marr</b>	Colorado School of Mines, U.S.
	<b>An accidental professor: a long and winding road to follow in Perry's footsteps</b>	

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Dec. 17, 2021

Dec  
17

10 a.m.	Introduction of today's session	Bruce Rittmann
10:05 a.m.	Keynote: <b>Craig Criddle</b>	Stanford University, U.S.
	<b>It can be embarrassing when microbes lose their genes</b>	
10:35 a.m.	<b>David Freedman</b>	Clemson University, South Carolina, U.S.
	<b>Measuring degradation rate constants for TCE in fractured rock</b>	
10:50 a.m.	<b>Donna Fennell</b>	Rutgers University, U.S.
	<b>Life in the slow lane: reductive dechlorination of dioxins</b>	
11:05 a.m.	<b>Anca Delgado</b>	Arizona State University, U.S.
	<b>When Kluyver(i) meets McCarty(i): reductive dechlorination mediated by chain elongation</b>	
11:20 a.m.	10-minute break	
11:30 a.m.	<b>Lew Semprini</b>	Oregon State University, U.S.
	<b>Aerobic cometabolic treatment of chlorinated aliphatic hydrocarbons and 1,4-dioxane by hydrogel beads that co-encapsulate Rhodococcus rhodochrous ATCC 21198 and orthosilicates that produce alcohols as growth substrates</b>	
11:45 a.m.	<b>Molly Morse</b>	Mango Materials, U.S.
	<b>Turning biogas methane into biodegradable polymers, the Mango Materials story</b>	
Noon	<b>Gonzalo Pizarro</b>	The Pontifical Catholic University of Chile
	<b>The importance of education, and how research influences our teaching</b>	
12:15 p.m.	<b>Joseph Hughes</b>	Drexel University, U.S.
	<b>Peace engineering</b>	

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# iFAST Symposium Environmental Biotechnology

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Dec. 18, 2021

Dec  
18

10 a.m.	Introduction of today's session	Bruce Rittmann
10:05 a.m.	Keynote: Elizabeth Edwards	University of Toronto, Canada
	<b>Anaerobic hydrocarbon biodegradation, from early days to bioaugmentation</b>	
10:35 a.m.	Ken Williamson	Oregon State University, U.S.
	<b>Perry McCarty's path from treatment fundamentals to the anaerobic membrane reactor: paradigms, laboratory research, and student contributions</b>	
10:50 a.m.	Richard Speece	Vanderbilt University, U.S.
	<b>Perry saved anaerobic treatment from an early demise to make it the process of choice</b>	
11:05 a.m.	Lutgarde Raskin	University of Michigan, U.S.
	<b>Role of microbial ecology in anaerobic bioreactor engineering</b>	
11:20 a.m.	5-minute break	
11:30 a.m.	Jaeho Bae	Inha University, Korea
	<b>Development of fluidized-bed-based anaerobic treatment of domestic wastewater</b>	
11:45 a.m.	Chungheon Shin	Stanford University, U.S.
	<b>Domestic wastewater treatment as a net energy producer — achieved with a large-scale SAF-MBR</b>	
Noon	Perry McCarty	Stanford University, U.S.
	<b>The essential expansion of Environmental Engineering and Science education</b>	
	Adjourning: Jizhong Zhou	University of Oklahoma, U.S.

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