



ACS Fall 2022 CME NASA Events 8/22-23



Advancing Diversity and Environmental Social Governance

8/22-8/23 ACS I&EC CME NASA Symposium

8/23 PM CME NASA Sustainability Conference

8/23 CME STEM Leadership Awards Dinner

8/23 In-Space Chemistry Roundtable



I&EC

CME
NASA STEM
SYMPOSIUM

PRES

I&EC 005: Fifth CME NASA Symposium – W190a

Chemistry for Sustainable Human Space Exploration

AGFD	CHED	MEDI
AGRO	CINF	NUCL
ANYL	COLL	ORGN
BIOL	COMP	PHYS
BIOT	ENFL	PMSE
BMGT	ENVR	POLY
CARB	FLUO	PROF
CATL	GEOC	SCHB
CELL	HIST	TOXI
CHAL	I&EC	RUBB
CHAS	INOR	

AIR PRODUCTS

DOW

BLAVATNIK FAMILY FOUNDATION

MERCK

BASF
We create chemistry

Keynote

CME Lecturers

8/22 PMSE ACS
Outstanding Student & Mentor Awards

8/23 Panel
on Sustainability & Climate Chemistry



scan me



Katherine Calvin
NASA



Fraser Stoddart
Northwestern



Chad Mirkin
Northwestern



James Green
NASA

8/22-23/2022 | Symposium Registration: www.CME-STEM.org



9th Event with NASA's Chief Scientist Office



August 22 - 23, 2022 | Chicago, Illinois

CME Lectures by Nobel Laureates
PMSE CME Student & Mentor Awards
Climate Chemistry Talks by Thought Leaders
Sustainability Conference at UChicago

Organizations Supporting this ACS President Recommended Event

I&EC



NASA

PRES



I&EC: Chemistry for Sustainable Human Space Exploration

Presidential Recommended Event (PRES) of the 2022 ACS President Dr. Angela Wilson sponsored by the Division of Industrial & Engineering Chemistry (I&EC) co-organized with CME and NASA brings together industry, academia and government to enhance the diverse STEM talent pool. Two days packed with inspirational cutting-edge developments in the chemical sciences to advance human space travel and translate them into new knowledge to make personal dreams a reality.

August 22, 2022 - DAY 1

NASA Day

AM, PM: Speakers: NASA (Langley, Glenn, Goddard Institute for Space Studies), U Virginia, UTEP, U Iowa, U Michigan, U Illinois. PM: NASA Talks, UChicago, PMSE and CME present the Student & Mentor Awards

August 23, 2022 - DAY 2

Industry, Government & Academia

AM: Panel 1 with speakers from government on energy efficiency and climate change. Panel 2 with speakers from industry including Beckton Dickinson, Northrop Grumman and Blue Origin.

AM: Keynote: NASA Chief Scientist Kate Calvin. CME Lectures Nobel Laureate Sir Fraser Stoddard, Professor Chad Mirkin and former NASA Chief Scientist James Green.

PM: Separate CME NASA Sustainability Conference at the Rubenstein Forum. Keynote: Paul Alivisatos, Chemist and UChicago President

Get Schedule Changes, Updates, Speaker Bios

Register for Symposium & Conference: www.CME-STEM.org



August 22: McCormick

NASA Day: Langley, Glenn, GISS

PMSE CME Student & Mentor Awards

Chemistry for Sustainable Human Space Exploration

8/22 - I&EC005A - NASA Day One - Morning Session at McCormick Place W190a

8:00 AM	Sally Pusede	U Virginia Environmental Science	Observing Air Pollution Inequality from Space
8:25 AM	Rosa Fitzgerald	UTEP Physics	Air Pollution in Desert and Nearby Metropolitan Areas
8:50 AM	Jun Wang	U Iowa Biochemical Engineering	Satellite observations of atmospheric composition and wildfires for air quality and climate change
9:15 AM	Eric Kort	U Michigan Climate and Space Science	Using aircraft and satellite observations to study human influences on greenhouse gases
9:40 AM	Steve Barnett	CME Co-Chair	Intermission
9:55 AM	Jack Kaye	NASA HQ Earth Science Division	Chemistry, Space, and Earth's Future: How NASA Help us Understand Today's Changing Earth and Anticipate its Future
10:25 AM	Jennifer Gustetic	NASA Early Stage Innovations Partnering	Innovation in Sustainability through Early-Stage Partnerships at NASA
10:55 AM	Ioannis Chasiotis	U Illinois Urbana-Champ. Engineering	Durability Studies of Advanced Materials for deployment to Low Earth Orbit (LEO)
11:25 AM	Emilie Siochi	NASA Langley Advanced Materials	Accelerating the Maturation and Adoption of New Technologies
11:55 AM	Shah Karim	CME Program Chair	Session Adjourns

8/22 - I&EC005B - NASA Day One, PMSE CME Student & Mentor Awards at McCormick Place W190a

2:00 PM	Stephanie Vivod	NASA Glenn Research Chemical Engineering	Polymer Aerogels for Lunar Applications and Beyond
2:25 PM	Stuart Rowan	U Chicago PME Molecular Engineering	Toward Pluripotent Materials
2:50 PM	Matthew Tirrell	U Chicago PME Molecular Engineering	Hetero-charged polymer systems with applications from marine biology to biomedicine
3:15 PM	Nuno Almeida	Michigan State University Chemistry	Transition metal oxide catalysts and routes towards accurate thermochemistry processes
3:40 PM	George Rodriguez	CME Programming	CME PMSE Student & Mentor Award Presentation
3:55 PM	Vivian Feig	MIT Material Science and Engineering	Conductive hydrogels for next-generation bio-electronic interfaces: stiffness, stretchability, and dimensionality
4:25 PM	Zhenan Bao	Stanford U Material Science & Engineering	Engineering Soft Polymer Electronics for Bio Interfaces
4:55 PM	Spyridon Varlas	U Sheffield Polymer Science	Tuning the Membrane Properties of Functional Polymersomes Developed by Aqueous Polymerization-Induced Self-Assembly (PISA)
5:25 PM	Rachel O'Reilly	U Birmingham Chemistry	Getting into shape: Precision polymer nanoparticles
5:55 PM	Ksenia Takhistova	CME Co-Chair	Session Adjourns

August 23 AM: McCormick Fifth CME NASA Symposium Lecture by Nobel Laureate

Chemistry for Sustainable Human Space Exploration

8/23 - I&EC005C - Advanced Materials - Industry Panel at McCormick Place W190a

8:00 AM	James Green	NASA Advisor, Former Chief Scientist	Introduction to Panel on Sustainability and the Chemistries of Climate
8:01 AM	Sunita Satyapal	DOE Hydrogen Fuel Cell Technologies	U.S. Department of Energy's Hydrogen and Fuel Cell Perspectives
8:10 AM	Susanne Bauer	NASA GISS Aerosol Research	Chemistry and the Climate's Backseat Drivers
8:15 AM	Patrick Taylor	NASA Langley Climate Research	Arctic Climate Change, Clouds, and Chemistry
8:20 AM	James Green	NASA Advisor, Former Chief Scientist	Panel Discussion on Sustainability and the Chemistries of Climate
8:49 AM	Tara Ruttley	Blue Origin Orbital Reef	Introduction to Panel on Advanced Materials and Living in Space
8:50 AM	Anne Shim	BD CCMD Research and Development	Advanced Materials for a Sustainable Future in Life Sciences
8:55 AM	Tara Ruttley	Blue Origin Orbital Reef	Accelerating the Future Living in the Low Earth Orbit (LEO) Economy
9:00 AM	Jon Arenberg	Northrop Grumman Robotic Missions	Chemistry and the Next Great Leap in Sustainable Space Living
9:05 AM	Tara Ruttley	Blue Origin Orbital Reef	Panel Discussion on Advanced Materials and Living in Space
9:40 AM	Shah Karim	CME Program Chair	End of Session Remarks - Intermission
9:55 AM	George Rodriguez	CME Programming	Introduction to CME NASA Lectures Session
10:00 AM	Kate Calvin	NASA Chief Scientist	Keynote: Chemistry, Climate, Sustainability, and Space
10:30 AM	Fraser Stoddart	Northwestern U Nobel Laureate in Chemistry	Sustainability Through Chemistry Away-from-Equilibrium
11:00 AM	Chad Mirkin	Northwestern U Chemistry, Nanotech	Exploring the "Matterverse" with Nanomaterial Megalibraries
11:30 AM	James Green	NASA Advisor, Former Chief Scientist	Shaping a Sustainable Era of Space Exploration with Perseverance and Ingenuity
12:00 AM	George Rodriguez	CME Programming	Closing Remarks

8/23 CME Lectures

For the Annals of Civilization



Katherine Calvin
NASA

Chief Scientist, Sr. Climate Adv.



Sir Fraser Stoddard
Northwestern University

2016 Nobel Prize in Chemistry



Chad Mirkin
Northwestern University

Professor

Symposium Remarks



James Green
NASA

Former Chief Scientist



Angela Wilson
American Chemical Society

2022 President



Judy Giordan
American Chemical Society

2023 President

8/22 Speakers

Partial list of distinguished thought leaders



Stuart Rowan

UChicago

Barry L. MacLean Professor of
Molecular Engineering



Jennifer Gustetic

NASA

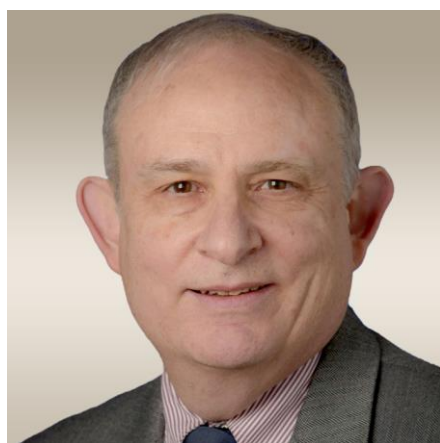
Director, Early-Stage Innovations
and Partnerships



Matthew Tirrell

UChicago

Dean, Pritzker School of
Molecular Engineering



Jack Kaye

NASA

Associate Director for Research
Earth Science Division



Stephanie Vivod

NASA Glenn

Research Chemical Engineer
Advanced Polymeric Materials



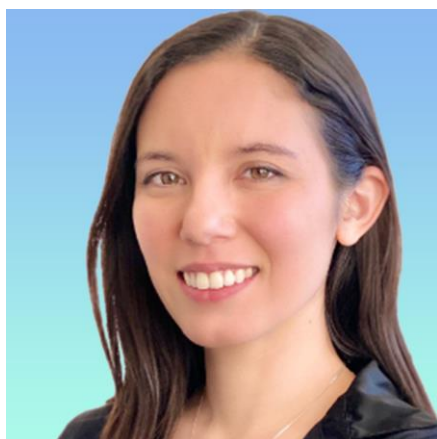
Ioannis Chasiotis

University of Illinois, U-C

Professor, Associate Head of
Materials, Interfaces Mechanics

2022 CME PMSE Student & Mentor Awards

ACS Global Outstanding Student & in Polymer Science & Engineering



Vivian Feig
Stanford University
USA Graduate Student



Spyridonos Varlas
University of Birmingham
International Graduate Student

Mentors



Zhenang Bao
Stanford University
Mentor



Rachel O'Reilley
University of Birmingham
Mentor

2017-2021 Speakers

Partial list of distinguished thought leaders



Eric Betzig
 UC Berkeley
 2014 Nobel Prize in Chemistry



Craig Venter
 Human Genome Project
 Visionary Industry Scientist



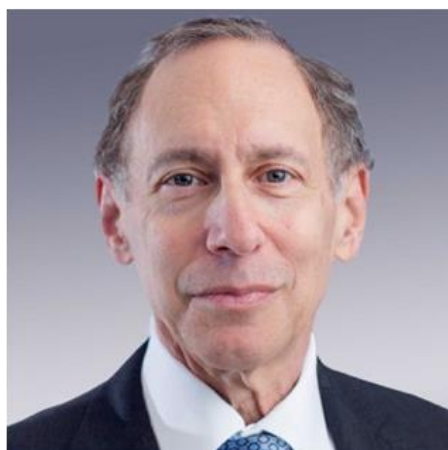
Frances Arnold
 Caltech
 2018 Nobel Prize in Chemistry



Ben Feringa
 University of Groningen
 2017 Nobel Prize in Chemistry



Janet Kavandi
 NASA Glenn Research Center
 Director (Former Astronaut)



Robert Langer
 MIT
 Koch Institute Professor; most cited engineer, 1400 patents

PME

UChicago

CME
 NASA STEM
 SUSTAINABILITY

Earth and Space Sustainable Living



Sustainability
 and Climate
 Perspectives

Creating the
 Future WET
 Space (Work,
 Exploration
 and Tourism)

Life Science
 Sustainable
 Innovation

Keynote

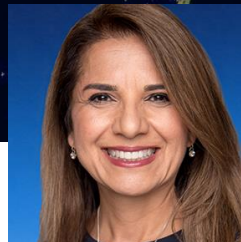
Speakers



Paul Alisivatos
 UChicago



James Green
 NASA



Shirin O'Connor
 Air Products



Tara Ruttley
 Blue Origin

August 23 PM: UChicago CME NASA Sustainability Conference

Separate Event from ACS Fall 2022 | Free Registration: cme-stem.org

Sustainable Living: Earth and Space

Register for Schedule Updates, Speaker Bios, Room Assignments: www.CME-STEM.org

8/23 - Afternoon Session at the UChicago Rubenstein Forum

1:30 PM	George Rodriguez	CME Programming	Introduction
1:32 PM	Matthew Tirrell	UChicago PME Molecular Engineering	Remarks
1:35 PM	Paul Alisivatos	UChicago President	Sustainability at the University of Chicago
2:00 PM	Steve Barnett	CME Co-Chair	Introduction
2:02 PM	James Green	NASA Advisor, Former Chief Scientist	Panel on Sustainability and Climate
2:04 PM	Jack Kaye	NASA HQ Earth Science Division	Climate: An Earth Sciences Perspective
2:12 PM	Shirin O'Connor	Air Products Global Engineering	Energy Decarbonization, The Hydrogen Economy and NEOM the City of the Future
2:20 PM	Benjamin Knudsen	BASF Research	Net Zero 2050, White Biotechnology and Curiosity Super Computer
2:28 PM	James Green	NASA Advisor, Former Chief Scientist	Panel Discussion on Sustainability and Climate
3:00 PM	Sam Samdani	McKinsey	Introduction to Life Sciences Panel on Sustainability
3:05 PM	Sinem Hostetter	McKinsey Chicago	Life Sciences Sustainability Overview
3:15 PM	Michael Waslin	Merck Sustainability Center of Excellence	Establishing a Culture of Environmental Stewardship
3:30 PM	Jenny Obligacion	Merck Labs Process Chemistry	Pharmaceutical Process Innovation
3:45 PM	Sam Samdani	McKinsey	Panel Discussion
4:15 PM	Shah Karim	CME Program Chair	End of Session. Intermission
4:30 PM	James Green	NASA	Managing Sustainability Threats: Catastrophic Blackout Risks
5:00 PM	Ksenia Takhistova	CME Co-Chair	Introduction of Panel Moderator
5:02 PM	Tara Ruttley	Blue Origin Orbital Reef	Creating the Future WET Space (Work, Exploration and Tourism)
5:09 PM	John Arenberg	Northrop Grumman Robotic Missions	The Next Great Leap in Sustainable Space Living
5:16 PM	Jana Stoudemire	Axiom Space	Taking the LEO Economy to the Next Phase
5:23 PM	Tara Ruttley	Blue Origin Orbital Reef	Panel Discussion on Sustainable Space Living
6:00 PM	Shah Karim	CME Program Chair	Closing Remarks

Speakers

Advancing Diverse STEM Talent



James Green
NASA
Senior Advisor
Former Chief Scientist



Paul Alisivatos
University of Chicago
President (and Chemist)



Shirin O'Connor
Air Products
Vice President
Global Engineering



Jack Kaye
NASA
Associate Director for Research
Earth Science Division



Tara Ruttley
Blue Origin
Chief Scientist Orbital Reef
Space Station



Benjamin Knudsen
BASF
Vice President of Research in
North America

2022 Academic Honorees



Enabling
Talent Growth

Paul Alivisatos
University of Chicago
President



Propelling Science

Sir Fraser Stoddart
2016 Nobel Laureate
in Chemistry



Entrepreneurial
Innovation

Chad Mirkin
International Institute for
Nanotechnology Director

August 23 – CME STEM Leadership Awards Dinner – Rubenstein Forum



PME

CME

NASA STEM
SUSTAINABILITY

$$U = -\frac{W_{\infty}}{m} = -\frac{1}{m} \int_{\infty}^r \mathbf{F} \cdot d\mathbf{r} = -\int_{\infty}^r \mathbf{g} \cdot d\mathbf{r}$$

UChicago

Space Chemistry Roadmap

AIR PRODUCTS

DOW

BLAVATNIK
FAMILY FOUNDATION

MERCK
INVENTING FOR LIFE

BASF
We create chemistry

Keynote

Speakers



James Green
NASA



Jana Stoudmire
Axiom Space



Ferenc Darvas
InnoStudios



Ken Savin
Redwire

8/23/2022 | Space Chemistry Roundtable at UChicago | By invitation only

August 23 PM: UChicago Space Chemistry Roundtable Agenda

Separate Track at the CME NASA Sustainability Conference

In-Space Chemistry Roundtable

Register for Schedule Updates, Speaker Bios, Room Assignments: www.CME-STEM.org

8/23 - Afternoon Track at the UChicago Rubenstein Forum

3:00 PM	Move from Main Auditorium to the Roundtable Room		
3:05 PM	George Rodriguez	CME	Welcome
3:06 PM	James Green	NASA	Introduction
3:10 PM	Ferenc Darvas	InnoStudio	Building a Roadmap for Space Chemistry Applications
3:15 PM	James Green	NASA	NASA Space Chemistry Exploration Needs
3:20 PM	Jana Stoudemire	Axiom Space	The Developing LEO Economy
3:25 PM	Kenneth Savin	RedWire	Industrial/Commercial Space Chemistry Initiatives
3:35 PM	Lead: Jana Stoudemire, Ferenc Darvas	Axiom Space, InnoStudio	Roundtable Discussion
3:35 PM	Panel		Discussion of relevant focus areas and impactful POCs
3:45 PM	Panel		Necessary capabilities to support in-space chemistry
3:55 PM	Panel		Use of the ISS and orbital platforms for development
4:10 PM	Panel		Collaboration amongst government, academia, and industry
4:20 PM	Lead: Kenneth Savin	RedWire	Summary and Next Steps
4:34 PM	Steve Barnett	CME	Adjourn
4:35 PM	Go to Auditorium of the Sustainability Conference		

Separate Track Not Listed in the Main Conference Schedule.



Award-winning Space Age STEM Programs



Advancing Diversity and Environmental Social Governance

CME STEM Symposiums with NASA

CME STEM Leadership Awards

CME STEM Talks by Thought Leaders

CME STEM Festivals

