CME NASA STEM SYMPOSIUM

ACS Fall 2024

8/18-20 · POLY 006 · Sheraton Denver Downtown

CME NASA Program

Elevating Polymer Chemistry for Human Space Exploration:
Polymers for Future Space Missions

8/18 · NASA Day, CME PMSE Student & Mentor Awards

8/19 AM · Space Chemistry Roundtable

8/19 PM · CME NASA Sustainability: Earth & Space

8/20 AM · Industry & Academia, CME Nobel Lectures

POLY

PRES

CME
NASA STEM
SYMPOSIUM

Fall 2024: Elevating Polymer Chemistry to New Heights

Polymers for Future Space Missions

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

8/18 PMSE CME Student & Mentor Awards

8/20 CME Lectures Leadership Awards

AIR PRODUCTS

DOW

MERCK

ExxonMobil

BASF
We create chemistry

Speakers

Martin Keller
NREL

Carolyn Bertozzi
Stanford

Frances Arnold
Caltech

Michael Roberts
ISS National Lab

2024.08.18-20 · Sheraton Denver Downtown · Registration: www.CME-STEM.org

8/18 · Day 1 · NASA, Academia, Awards

Sheraton Denver Downtown

Elevating Polymer Chemistry for Human Space Exploration: Polymers for Future Space Missions

Day 1: Sunday 8/18 AM - POLY006A: Academia, NASA - Plaza Ballroom F (go to cme-stem.org for bios, abstracts)			
8:45 AM	Shah Karim	CME	Welcome and introduction
8:50 AM	Chris Bates	UC Santa Barbara	Accelerated discovery of block copolymers using automated chromatography
9:20 AM	Austin Evans	University of Florida	Accessing next-generation polyolefins by electrochemical postsynthetic modification
9:50 AM			Intermission
10:00 AM	David Ginger	University of Washington	Conjugated polymers as mixed Ionic electronic conductors: From neuromorphic transistors to energy storage
10:30 AM	Seth Marder	University of Colorado Boulder	From neuromorphic transistors to energy storage
11:00 AM	Jihye Park	University of Colorado Boulder	Tuning properties of 2D conductive metal-organic frameworks from molecular approaches
11:30 AM	Stuart Rowan	University of Chicago	Accessing pluripotent materials through tempering of dynamic covalent polymer networks
12:00 PM	Shah Karim	CME	Closing remarks
Day 1: Sunday 8/18 PM - POLY006B: NASA, CME PMSE Student & Mentor Awards - Plaza Ballroom F			
2:00 PM	Ksenia Takhistova	CME	Introduction
2:01 PM	Jessica Koehne	NASA Ames	In-space manufacturing for sustained human exploration
2:30 PM	Mia Siochi	NASA Langley	Polymers and composites for aerospace applications
3:00 PM	Stephanie Vivod	NASA Glenn	Polymer aerogels for lunar applications and beyond
3:30 PM			Intermission
3:40 PM	Pamela Cai	University of Chicago	Polymer physics driven design and understanding of biological materials
4:05 PM	Andrew Spakowicz	Stanford University	Active DNA olympic hydrogels modulated by topoisomerase activity
4:30 PM	George Rodriguez	CME	CME and PMSE present the ACS Outstanding Global Student & Mentor Awards
4:40 PM	Laura Rijns	Stanford University	Design rules for supramolecular hydrogel-cell interactions: From growing tissue towards bio-electronic applications
5:05 PM	Patricia Dankers	Eindhoven University of Technology	Complex tissue-inspired materials based on supramolecular polymers
5:30 PM	Ksenia Takhistova	CME	Closing remarks

8/19 · Day 2 · Space Chemistry & Sustainability

Sheraton Denver Downtown

Space Chemistry Roundtable

Day 2: Monday 8/19 AM - POLY006C: Space Chemistry Roundtable - Plaza Ballroom E (this session is by invitation only)			
8:00 AM	Ksenia Takhistova	CME	Introduction
8:05 AM	Chyree Batton	Axiom Space	Advancing the Low-Earth Orbit (LEO) Economy
8:30 AM	Jana Stoudemire	Axiom Space	Panel Discussion on the Fast-Growing Space Age Economy
10:00 AM			Intermission
10:10 AM	Ken Savin	Redwire	Panel Discussion on Roadmap Action Items
11:30 AM	Ksenia Takhistova	CME	Closing remarks

CME NASA Earth & Space Sustainability

Day 2: Monday 8/19 PM - POLY006D: CME NASA Earth & Space Sustainability Summit- Plaza Ballroom F			
2:00 PM	Ksenia Takhistova	CME	Introduction
2:01 PM	Chad Mirkin	Northwestern University	Changing the pace of materials discovery through nanomaterial megalibraries
2:25 PM	Michael Roberts	ISS National Laboratory	International Space Station National Laboratory: Elevating chemistry to new heights
2:45 PM	Kristin Fabre	NASA JSC - Human Research Program	NASA science for human exploration
3:00 PM	Diana Ly	NASA HQ - Biological and Physical Sciences	How space biology enables exploration
3:15 PM	Kristin Fabre	NASA JSC - Human Research Program	Enabling astronaut health & performance for space exploration missions
3:30 PM	Ksenia Takhistova, Kristin Fabre	CME, NASA	Panel on space sustainability: Academia, NASA and ISS National Lab
4:00 PM			Intermission
4:10 PM	Shah Karim	CME	Introduction
4:11 PM	Katrina Knauer	NREL	Exploring material circularity in space: A paradigm shift in sustainable space exploration
4:30 PM	Robert Kumpf	Deloitte	Strength in numbers: Reducing Scope 3 emissions in the chemical industry
4:50 PM	Kevin Fogash	Celanese	Sustainability at scale: Practical innovation at Celanese
5:10 PM	Jon Arenberg	Northrop Grumman	Polymers and space astronomy: Past, present and future
5:30 PM	Deb Ryan	S&P Global	Panel on large-scale Earth & space sustainability: NREL, Celanese, Northrop Grumman, and Deloitte
6:00 PM	Shah Karim	CME	Closing remarks

8/20 · Day 3 · CME Lectures & Awards

Sheraton Denver Downtown

Elevating Polymer Chemistry for Human Space Exploration: Polymers for Future Space Missions

Day 3: Tuesday 8/20 AM - POLY006E: CME Lectures & STEM Leadership Awards (go to cme-stem.org for bios, abstracts and location)

8:20 AM	Shah Karim	CME	Introduction
8:25 AM	James Hedrick	Azul 3D	Transforming thermosets into UV curable resins for additive production
8:50 AM	Joey Luther	NREL	Developing and testing perovskite solar cells as space energy source
9:15 AM	Teresa Barnes	NREL	Photovoltaic module materials: Lessons from Earth
9:40 AM			Intermission
9:50 AM	Balaji Narasimhan	Iowa State University	Room temperature-stable nanovaccines: A breakthrough in healthcare
10:20 AM	Frances Arnold	Caltech	Innovation by evolution: Bringing new chemistry to life
10:50 AM	Martin Keller	NREL	Innovative chemistry for a clean energy future.
11:20 AM	George Rodriguez	CME	CME STEM Leadership Award presentation to Carolyn Bertozzi and Martin Keller
11:30 AM	Carolyn Bertozzi	Stanford University	Therapeutic targeting of mucin glycoproteins
12:00 PM	George Rodriguez	CME	Closing remarks

CME STEM Leadership AWARDS

Inspiring Women in Science

Carolyn Bertozzi
2022 Nobel Laureate

Excellence in Sustainability

Martin Keller
NREL 9th Director

CME Lectures

For the Annals of Civilization

Martin Keller

National Renewable Energy Laboratory (NREL)

9th Director

Carolyn Bertozzi

Stanford University

2022 Nobel Prize in Chemistry

Frances Arnold

Caltech

2018 Nobel Prize in Chemistry

Recommended by

Judy Giordan

American Chemical Society

2023 President

Mary Carroll

American Chemical Society

2024 President

Dorothy Phillips

American Chemical Society

2024 President-Elect

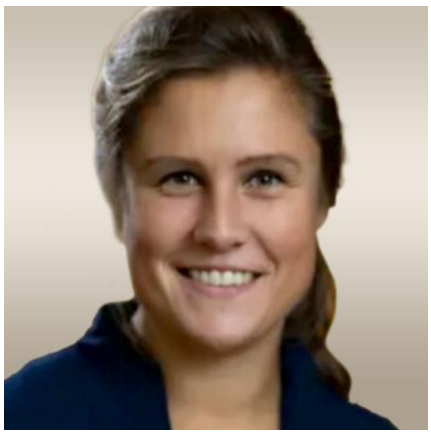
2024 CME PMSE Student & Mentor Awards

ACS Global Outstanding Student & in Polymer Science & Engineering

Pamela Cai

Stanford University

USA Graduate Student



Laura Rijns

Eindhoven University of Tech.

International Graduate Student

2024.08.18 3:30 – 5:30 PM Denver

Andrew Spakowitz

Stanford University

USA Mentor

Patricia Dankers

Eindhoven University of Tech.

International Mentor

CME NASA STEM SYMPOSIUM

2017-2023 CME Nobel Lectures

Partial List of Eminent Thought Leaders

Sir Fraser Stoddart

Northwestern University

2016 Nobel Prize in Chemistry

Barry Sharpless

Scripps Research Institute

2001 and 2022 Nobel Prize in Chemistry

Frances Arnold

Caltech

2018 Nobel Prize in Chemistry

Ben Feringa

University of Groningen

2016 Nobel Prize in Chemistry

Robert Grubbs

Caltech

2005 Nobel Prize in Chemistry

Eric Betzig

University of California Berkeley

2014 Nobel Prize in Chemistry

CME

NASA STEM

SUSTAINABILITY

POLY

PRES

8/19 · Space Chemistry Roadmap

AIR PRODUCTS

DOW

MERCK

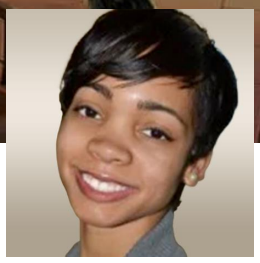
ExxonMobil

BASF
We create chemistry

Keynote

Speakers

Michael Roberts
ISS National Lab



Chyree Batton
Axiom Space

Kenneth Savin
Redwire

Ferenc Darvas
InnoStudios

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SUSTAINABILITY

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8/19 · Earth & Space Sustainability

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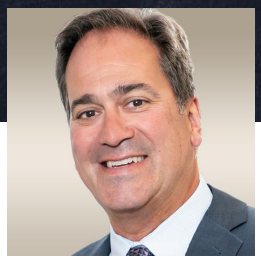
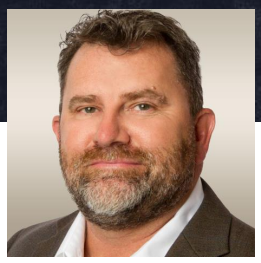
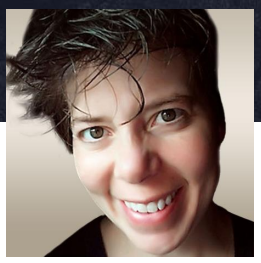


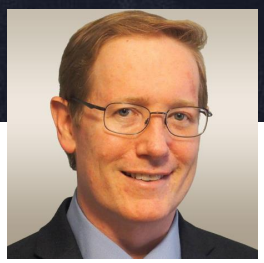
Chad Mirkin
Northwestern



Michael Roberts
ISS National Lab



Kristin Fabre
NASA



Kevin Fogash
Celanese

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CME NASA STEM SYMPOSIUM

8/18-20

POLY 006 · Sheraton Denver Downtown

Program Speakers

Elevating Polymer Chemistry to New Heights

Listed in Chronological Order

8/18 AM · Academia

Partial List of Distinguished Thought Leaders

Chris Bates
UC Santa Barbara

Associate Professor

Austin Evans
University of Florida

Assistant Prof., CME Director

David Ginger
University of Washington

Professor

Seth Marder
University of Colorado Boulder

Prof., NREL Sr. Research Fellow

Jihye Park
University of Colorado Boulder

Assistant Professor

Stuart Rowan
University of Chicago

Barry L. MacLean Professor

8/18 PM · NASA

Partial List of Distinguished Thought Leaders

Jessica Koehne
NASA Ames

Scientist

Mia Siochi
NASA Langley

Research Materials Engineer

Stephanie Vivod
NASA Glen

Chemical Engineer

8/18 PM · Student & Mentor Awardees

CME PMSE · ACS Global Outstanding Student & in Polymer Science & Engineering

Pamela Cai

Stanford University

USA Graduate Student

Laura Rijns

Eindhoven University of Tech.

International Graduate Student

2024.08.18 3:30 – 5:30 PM Denver

Andrew Spakowitz

Stanford University

USA Mentor

Patricia Dankers

Eindhoven University of Tech.

International Mentor

8/19 AM · Industry & Government

Partial List of Distinguished Thought Leaders

Jana Stoudemire

Axiom Space

Director, In-Space Manufacturing

Michael Roberts

ISS US National Laboratory

Chief Scientific Officer

Ken Savin

Redwire

Chief Scientific Officer

Chyree Batton

Axiom Space

Commercial Innovation Strategy

8/19 PM · Academia & Government

Partial List of Distinguished Thought Leaders

Chad Mirkin

Northwestern University

Professor and International Nanotechnology Institute Director

Michael Roberts

ISS US National Laboratory

Chief Scientific Officer

Diana Ly

NASA HQ

Deputy Director, Biological and Physical Sciences

Kristin Fabre

NASA JSC

Associate Chief Scientist, Human Research Program

8/19 PM · Industry & Government

Partial List of Distinguished Thought Leaders

Katrina Knauer
NREL

Researcher and CTO of BOTTLE

Robert Kumpf
Deloitte Consulting

Managing Director

Kevin Fogash
Celanese

Sr. Director Process Technology and Product Stewardship

Jonathan Arenberg
Northrop Grumman

Chief Mission Architect, Science and Robotic Missions

Deborah Ryan
S&P Global

Head of Emissions Insight

8/20 AM · Industry & Government

Partial List of Distinguished Thought Leaders

James Hedrick
Azul 3D

CTO and Founder

Joseph Luther
NREL

Senior Research Fellow

Teresa Barnes
NREL

Principal Scientist

8/20 AM · CME Lectures

Partial List of Distinguished Thought Leaders

Balaji Narasimhan

Iowa State University

Nanovaccine Institute Director

Frances Arnold

Caltech

2018 Nobel Prize in Chemistry

Martin Keller

NREL

9th Director

Carolyn Bertozzi

Stanford University

2022 Nobel Prize in Chemistry

2024 Event Collaborators

Creating STEM Events for the Space Age

Ksenia Takhistova

CME Co-Chair, General Counsel

Technology IP Attorney;
Mechanical & Chemical Engineer

Mamta Nagaraja

NASA

Associate Chief Scientist for
Exploration & Applied Research

George Rodriguez

CME Programming

Chemical Engineer, American
2020 Chemical Society Fellow

Shah Karim

CME Co-Chair

SafeRock CEO
PME Advisory Board Member

Steve Barnett

CME Director

Partner at Connell Foley LLP
Aeronautical Eng., PE, JD

Michael Meador

NASA Glenn

Former Game Changing Manager

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