

The background of the slide is a dark blue gradient. On the left side, there is a vertical image of a space shuttle launching, with a large plume of white smoke and orange fire at its base. The rest of the background is filled with a complex, glowing network of yellow and green lines and dots, resembling a molecular structure or a data network. The main title is centered in the upper half of the slide.

SPACE CHEMISTRY: HOW IT HELPS SPACE EXPLORATION

ON 3RD APRIL, 2017 AS PART OF THE
253RD AMERICAN CHEMICAL SOCIETY
NATIONAL MEETING & EXPOSITION,
SAN FRANCISCO, CALIFORNIA, USA
2000 - MOSCONE CENTER

Sponsoring Committee: Younger Chemists Committee
Session: Space Chemistry: How it Helps Space Exploration

If you would like to participate in shaping the future of chemistry in space, come and hear one of the first woman chemist astronauts **Dr. Shanon Lucid (ret. NASA)**, who spent a record six months at the space station carrying out research, describing her experience and projecting our future in space together with twelve internationally known space scientists' lecture.

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That one giant step for humankind took just a few minutes, but it was years of research based on chemistry which made it possible. If we want to really go to places where no one has ever gone before, we have to enable the ability to perform chemistry in space and this will be the overall topic of the symposium.



Have you ever wondered if chemistry is different in space than on the ground? Can chemistry be performed using and taking advantage of the extremities of space? Can we conduct experiments in space remotely from Earth? Can we prepare pharmaceuticals in the space? How can advanced materials like polymers and nanostructures be prepared and used in outer space? Can we prepare in the future rocket propellants in the space?



Don't miss your chance to listen to 13 lectures performed by reputable, internationally renowned scientists.

The topics will cover a wide range of pioneering chemistry technologies from space perspectives including flow chemistry, photochemistry, electrochemistry, aerogels, and more novel trends in chemistry.

Through these lectures, we are hoping to help inspire innovative and unique chemistry research areas for the benefit of mankind here on Earth as well as in space.

**Organizers/
Presiders:**

**Ferenc Darvas
Roland Hirsch
Attila Pavlath**

Organized with the support of the Flow Chemistry Society



Space Chemistry: How It Helps Space Exploration

3rd April, 2017

Division: Younger Chemists Committee

Morning schedule /// Session Chairs: Attila Pavlath, Roland Hirsch

Timetable	Speaker	Affiliation	Title of Talk
8:00 8:05	Attila Pavlath	USDA	Introduction
8:05 8:35	Luke Roberson	Kennedy Space Center, NASA	The chemistry of the planets
8:35 9:05	Ferenc Darvas/ Richard Jones	ThalesNano Inc.	Chemistry in space: demands, perspectives and tools
9:05 9:35	Frank Gupton	Virginia Commonwealth University	Pharmacy on Demand for Extended Space Travel
9:35 10:05	Rigoberto Advincula	Case Western University	Polymers and Nanostructuring in Flow Synthesis: Space Chemistry perspective
10:05 10:20	Break		
10:20 10:50	Shannon Lucid	Astronaut, ret. NASA	Following Chemistry into Space
10:50 11:20	Stefan Loebbecke	Fraunhofer Institute	Advanced Synthesis in Micro-Structured Flow Reactors: From Rocket Propellants to Future Space Explorations
11:20 11:50	Mary Ann Meador	Glenn Research Center, NASA	Polyimide and polyamide aerogels: lightweight multifunctional materials for aerospace application

Afternoon schedule /// Session Chair: Ferenc Darvas

Timetable	Speaker	Affiliation	Title of Talk
1:30 2:00	Volker Hessel	TU/e - Eindhoven	Flow Chemistry: an Enabler for Space Chemistry
2:00 2:30	Aaron Beeler	Boston University	Utilizing Flow Chemistry to Harness High Energy Photochemical Reactions in Space
2:30 3:00	Csaba Janáky	University of Szeged	Challenges and Opportunities Regarding the (Photo)electrochemical Transformation of CO ₂ on the Mars
3:00 3:15	Break		
3:15 3:45	Thomas Wirth	Cardiff University	Electrochemistry: Reagentless Oxidations and Reductions in Space
3:45 4:15	Shu Kobayashi	University of Tokyo	High Yielding and Selective Organic Synthesis in Space by Flow Methods
4:15 4:45	Samuel M. Clegg	Los Alamos National Laboratory	Martian Chemical and Mineralogical Analysis with ChemCam and SuperCam