

## SYMPOSIUM ON JOURNEY TO MARS

2017 ACS President recommends event by POLY, CME, NASA

August 22-23, 2017 • Marriott Marquis, Washington, DC

In association with  
**NASA**

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### **Bringing together Industry, Academia, Government and the Public**

This symposium will focus on cutting-edge technological developments in the vast spectrum of the chemical sciences to advance human space travel to Mars and translate them into radical new practical knowledge for the benefit of Earth and its people.



### **Day 1: Technology Commercialization**

8:00 am – 11:30 am

Advanced Materials, Terraforming and In-situ Research Utilization.

1:00 pm – 3:45 pm

Key Developments in Energy, Materials and Life Science for human travel into space.

4:00 pm – 5:45 pm

CME Lectures and Panel Discussion featuring notable NASA Astronaut, industry leaders.

6:30 pm – 10:30 pm

Reception organized by CME.



### **Day 2: Advanced Research & Development**

8:00 am – 11:30 pm

Energy, Advanced Propellants, Space Mining and Computer Modelling.

1:00 pm – 5:00 pm

Life Support Systems including Sensors, Air and Water Purification, Radiation Shields, Somatic Compensation for Zero Gravity.



**Organizers:** Michael Meador, George Rodriguez, Charles Brumlik

**ACS Primary Sponsoring Division:** Polymer Chemistry (POLY)

**Co-Sponsors:** 2017 ACS President Allison Campbell, 2016 ACS President Donna Nelson, Chemical Marketing & Economics Group of the ACS New York Local Section (CME), National Aeronautics and Space Administration, ACS Space Chemistry division candidate and the ACS Technical Divisions in Analytical Chemistry, Business Development and Management, Colloid & Surface Chemistry, Environmental Chemistry, Fluorine Chemistry, Multidisciplinary Program Planning Group, Polymeric Materials: Science & Engineering, Small Chemical Businesses and Younger Chemists Committee.

Please send inquiries to [info@cmeacs.org](mailto:info@cmeacs.org)

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### CME Lectures Speakers:

- Craig Venter, Chairman, Human Longevity (ex-CEO of Celera Genomics)
- Janet Kavandi, Director, NASA Glenn Research Center

### Select Industry and Government Participant Affiliations:

- Lockheed, Boeing, SpaceX, Dow Chemical, Solvay, BASF, Eastman Chemical, ExxonMobil, IBM, Covestro, DSM, Evonik and other leading companies
- Members of the U.S. Senate and House of Representatives; Government agencies including NIH, FDA; Officials from Scientific Societies; and Science Attaches of various Embassies.

**Technical Session Organizer:** Michael Meador, PhD, Program Element Manager, Lightweight Materials and Manufacturing, NASA Game Changing Development Program and former Director of the National Nanotechnology Initiative (NNI).

### Partial List of Technical Session Contributions:

- Nanocomp – Carbon nanotube composites; Rice University – Carbon nanotube wires; NASA Langley – Lightweight carbon nanotube composites
- MIT – Sensors; University of Chicago – Stimuli responsive nanocomposites
- Texas A&M – Battery electrolytes; University of Maryland – Batteries
- Clemson University – Microbial engineering approaches to making lightweight materials from human waste; Washington University – Synthetic biology approaches to making fuels and advanced materials
- NASA Glenn – Polymer aerogels for thermal and electrical insulation

### Reception Organized by CME

August 22, 2017 • 6:30 pm – 10:30 pm • National Air and Space Museum



*“We choose to go to the Moon in this decade and do the other things, not because they are easy, but because they are hard; because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one we intend to win.”*

John F. Kennedy  
May 25, 1961.

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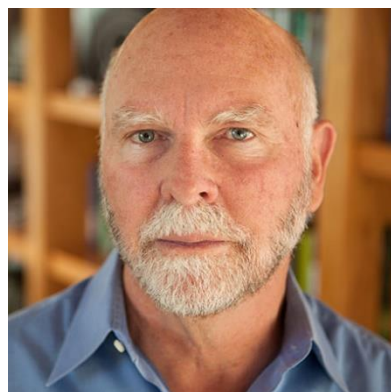
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#### **J. Craig Venter, PhD, Executive Chairman, Human Longevity**

Founder of Celera Genomics, key contributor to the 2001 Science publication of the human genome.

2008 United States National Medal of Science, the 2002 Gairdner Foundation International Award and the 2001 Paul Ehrlich and Ludwig Darmstaedter Prize

BS in Biochemistry and PhD in Physiology and Pharmacology .

J. Craig Venter, PhD, is regarded as one of the leading scientists of the 21st century for his numerous invaluable contributions to genomic research. In addition to his role as Co-founder and Executive Chairman of Human Longevity, Inc. (HLI), Dr. Venter is also Founder, Chairman, and CEO of the J. Craig Venter Institute (JCVI), a not-for-profit, genomics-focused research organization, and is Co-Founder, Executive Chairman, and Co-Chief Scientist of Synthetic Genomics Inc., to develop new sources of energy, food and nutritional products, and new vaccines.

Dr. Venter was a Navy Corpsman in Vietnam from 1967 to 1968. After earning both a BS in Biochemistry and a PhD in Physiology and Pharmacology from the University of California at San Diego, he worked at SUNY at Buffalo and the Roswell Park Cancer Institute, and later at the NIH. In 1992 Dr. Venter founded The Institute for Genomic Research where in 1995 he and his team decoded the genome of the first free-living organism, the bacterium *Haemophilus influenzae*.

In 1998, Dr. Venter founded Celera Genomics to sequence the human genome. This culminated with the February 2001 publication of the human genome in the journal *Science*. Celera also sequenced the fruit fly, mouse and rat genomes. He and his team at JCVI created the ground-breaking first self-replicating bacterial cell constructed entirely with synthetic DNA.

Dr. Venter is one of the most frequently cited scientists, and the author of more than 280 research articles. He is also the recipient of many honorary degrees, public honors, and scientific awards. Dr. Venter is a member of prestigious organizations including the National Academy of Sciences and the American Academy of Arts and Sciences. Dr. Venter has published two books, his autobiography *A Life Decoded* (2007) and *Life at the Speed of Light* (2013) about the future of synthetic biology.

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**Janet L. Kavandi, PhD, Director of NASA's Glenn Research Center**

Manages propulsion, communications, power, microgravity sciences and materials development.

Astronaut. 535 Earth Orbits. 13.1 million miles around the Earth.

Presidential Rank Award. 3 NASA Space Flight Medals.

PhD in analytical chemistry.

Dr. Kavandi is responsible for planning, organizing, and directing the activities required in accomplishing the missions assigned to the center. Glenn is engaged in research, technology, and systems development in support of the nation's space propulsion, space power, space communications, aeronautical propulsion, microgravity sciences, and materials development programs. The Glenn staff consists of more than 3,200 civil service and support contractor employees and has an annual budget of approximately \$625 million.

Before coming to Glenn, Dr. Kavandi worked at the NASA Johnson Space Center in Houston, Texas, where she served as the Director of Flight Crew Operations. In this role, she was responsible for the Astronaut Corps and aircraft operations at Ellington Field. She also served as the Deputy Director of the Health and Human Performance Directorate, responsible for the NASA flight surgeons and human research investigations on the International Space Station (ISS).

Dr. Kavandi was selected as a NASA astronaut in December 1994 as a member of the fifteenth class of U.S. astronauts. During her time in the Astronaut Office, she supported ISS payload integration, capsule communications, robotics, and served as Deputy Chief of the Astronaut Office. She is a veteran of three space flights, serving as a mission specialist on STS-91 in 1998, STS-99 in 2000, and STS-104 in 2001. Dr. Kavandi has logged more than 33 days in space, traveling more than 13.1 million miles in 535 Earth orbits.

Born in Springfield, MO, she earned a B.S. degree in chemistry from Missouri Southern State University in Joplin, a M.S. degree in chemistry from the Missouri University of Science and Technology in Rolla, and her doctorate in analytical chemistry from the University of Washington in Seattle. Dr. Kavandi has been recognized with a Presidential Rank Award, two NASA Outstanding Leadership Medals, two Exceptional Service Medals and three NASA Space Flight Medals.

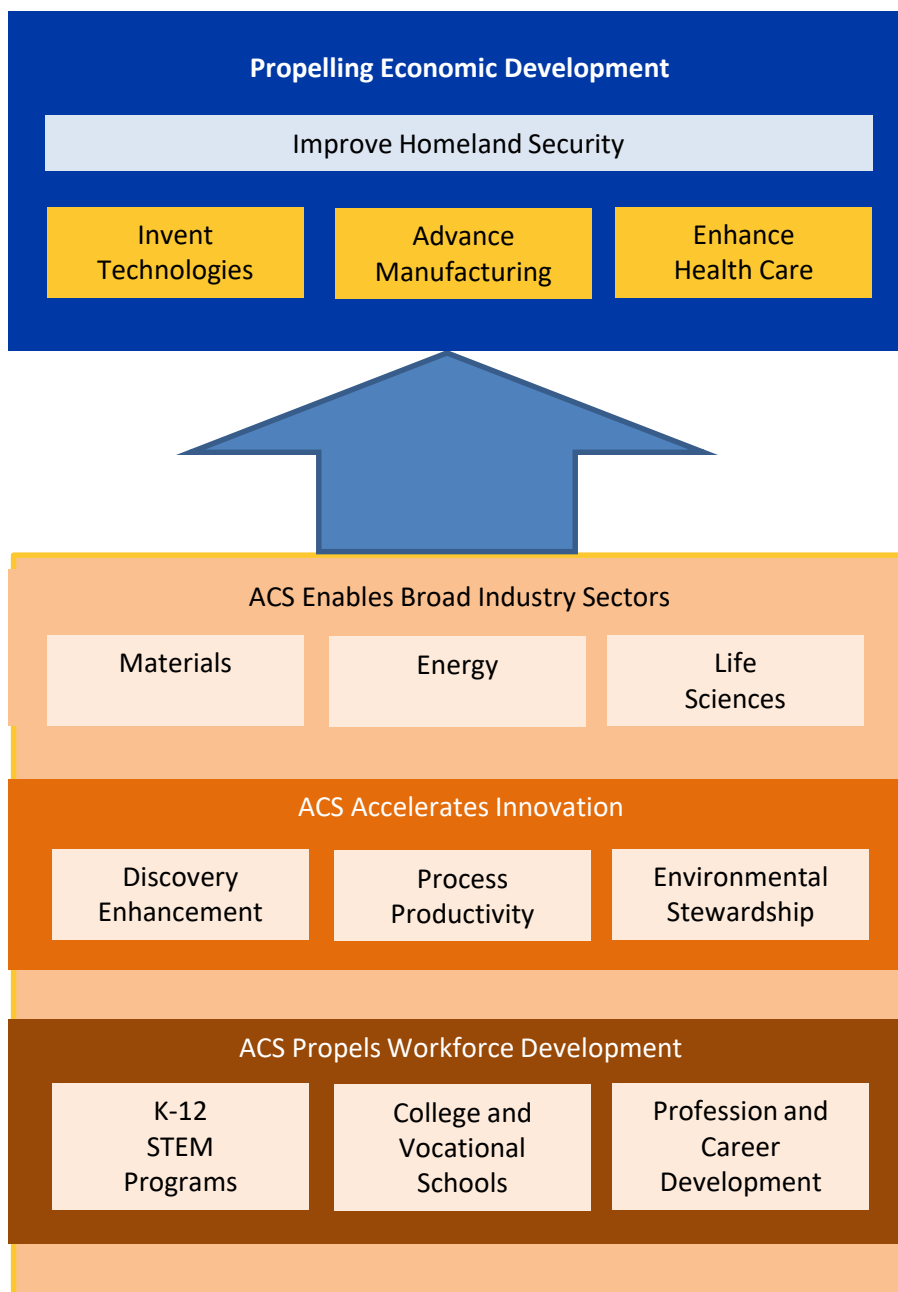
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Accelerate Innovation and  
Propel Workforce Development**

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