



إكسبو 2020  
دبي، الإمارات العربية المتحدة  
DUBAI, UNITED ARAB EMIRATES



المجلس العالمي  
WORLD MAJLIS

# Expo 2020 Dubai

## WORLD MAJLIS AGENDA

Space Week  
17-24 October 2021



**SPACE  
WEEK**

17-24 October 2021

WHAT IF SPACE  
EXPLORATION  
COULD CHANGE  
THE TRAJECTORY  
OF HUMANITY?

### Hope and Perseverance

Lessons from the Red Planet for Life on Earth

In collaboration with the USA

Thursday, 21st October 2021

16:00-18:00

The Auditorium  
Terra – The Sustainability Pavilion  
Sustainability District

# The Conversation Topic

## Hope and Perseverance

### Lessons from the Red Planet for Life on Earth

Mars missions are gaining momentum and generating a new flow of scientific information and discovery that may well contribute to our understanding of the Earth's trajectory.

On 9th February 2021, the UAE made history when its Hope spacecraft, the Arab world's first mission to another planet, successfully entered Mars' orbit to begin a two-year data-collecting operation. Nine days later NASA's Perseverance rover touched down in the Jezero Crater of Mars, the ninth spacecraft to successfully land on the Red Planet.

In a year of great global challenges here on Earth, Hope and Perseverance are not just major achievements in our quest to explore space. Like their evocative names, they are symbols of the importance of a spirit of international collaboration, and a perspective that goes beyond national boundaries and interests.

For centuries, Mars has been a source of inspiration for explorers, scientists, and authors. Recent missions have deepened our knowledge of the planet significantly and shown that it has characteristics and a history similar to Earth's. The exciting possibility of finding life elsewhere in the universe and new answers to our questions is prompting more countries and other players to participate in efforts to put humans on Mars.

- Why is exploring Mars so important?
- What should we prioritise in our efforts to explore Mars?
- Are we still racing to space, or have we entered a new era of collaboration?
- Will we see humans on Mars in our lifetimes?

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## Moderator

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### **Saeed Al Gergawi** **Dubai Future Foundation**

Saeed Al Gergawi is the Director of the Dubai Future Academy, the capacity-building arm of the Dubai Future Foundation, which works in building and develop capacity in future foresight by empowering leaders with the skills necessary to adapt to the future. Prior to joining the Dubai Future Foundation, Saeed worked as the Program Manager for the "Mars 2117" initiative at the Mohammed bin Rashid Space Centre, the UAE's 100-year space exploration strategy. In addition, Saeed was a member of the strategic planning team for the Emirates Mars Exploration Project "Probe of Hope".

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## Participants

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### **Dr. Michael A. Meyer** **Lead Scientist for the Mars Exploration Program, NASA Headquarters, USA**

Michael Meyer is a Senior Scientist at NASA Headquarters in the Science Mission Directorate. He is the Lead Scientist for NASA's Mars Exploration and for Mars Sample Return Programs, responsible for the science content of current and future Mars missions.



Dr. Meyer was the Senior Scientist for Astrobiology from 2001 to 2006. The Program, which is dedicated to the study of the life in the universe, started in 1997 with Dr. Meyer as the Discipline Scientist. Since 1993, Dr. Meyer managed NASA's Exobiology Program and from 1994 to 1997, was also the Planetary Protection Officer for NASA. Dr. Meyer was the Program Scientist for the 2001 Mars Odyssey mission, the Mars Microprobe mission (DS-2), and for two Phase I Shuttle/Mir experiments. From 1989-97, assistant research professor, Desert Research Institute, University of Nevada; 1985-89, associate director and associate in research for the Polar Desert Research Center, Florida State University; 1982 visiting research scientist at the Culture Centre for Algae and Protozoa in Cambridge, England.

Dr. Meyer's primary research interest is in microorganisms living in extreme environments. He has conducted field research in the Gobi Desert, Negev Desert, Siberia, and the Canadian Arctic. He is also a veteran of six research expeditions to Antarctica and two summers working as a treasure salvager.

Dr. Meyer earned his Ph.D. and M.S. in oceanography from Texas A&M University (1985 and 1981) and his B.S. in biology from Rensselaer Polytechnic Institute (1974).

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**Randy Lycans**  
**Vice President and General Manager, NASA Enterprise Solutions, USA**

Randy Lycans is Jacobs Vice President and General Manager (GM) of the NASA Enterprise Solutions organization. Randy oversees Jacobs support to NASA at Johnson Space Center (JSC), Kennedy Space Center (KSC), Marshall Space Flight Center (MSFC), Langley Research Center (LaRC), and the White Sands Test Facility (WSTF).

Prior to this role, Randy served as the Program Manager for our MSFC engineering and science support for 14 years. As the MSFC PM, he was responsible for providing scientific, engineering, and technical support to MSFC's Engineering Directorate, Science and Technology Office, Flight Programs and Partnerships Office, as well as future programs and projects. Prior to serving as the PM, Randy was the Deputy General Manager and Director of the ESTS Group's Engineering Directorate where he supported programs such as the Space Shuttle Return-to-Flight, the International Space Station, and the development of microgravity materials science experiments. Randy has more than 41 years of experience, the bulk of which has been spent supporting the human space flight program at NASA MSFC in various management and technical roles. He is experienced in thermal analysis and design, wind tunnel test support, and launch vehicle design and development.



Randy was selected as a NASA Space Flight Launch Honoree in 2003 and has authored a number of technical papers and journal articles. He was elected as an American Institute of Aeronautics and Astronautics (AIAA) Associate Fellow in 2016 and serves on the AIAA Management Technical Committee. In 2013 he received the AIAA Holger Toftoy Award for significant leadership of the MSFC engineering support contracts, providing outstanding engineering, technical and science support to major NASA MSFC programs, including Space Shuttle, International Space Station and Space Launch System.

He is a member of the University of Huntsville (UAHuntsville) President's Council and previously served as chair for the National Space Club – Huntsville and chair of the SciQuest Hands on Science Center. Randy received an MS degree in Mechanical Engineering (1985) and a BS degree in Mechanical Engineering (1981) from the University of Akron. He is a registered Professional Engineer in the state of Alabama.

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**Omran Sharaf**  
**Project Director of Emirates Mars Mission (Hope Probe), Mohammed Bin Rashid Space Centre, UAE**



Omran is Project Director of the Emirates Mars Mission (EMM) at the Mohammed bin Rashid Space Centre (MBRSC). He and his team are responsible for developing, launching, and operating the Hope Probe, the spacecraft of the mission. Omran has worked on the project from its initial conception and developed all the necessary capabilities and partnerships at MBRSC, effectively transitioning the organisation from one that focused on earth observation satellites to one that develops interplanetary exploration missions.

An experienced electronics and systems engineer, who trained in the US and Korea, Omran was responsible for developing and implementing the Command & Data Handling Subsystem (C&DH) for the DubaiSat-1 high resolution LEO imaging satellite. He also headed

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the development of the C&DH subsystem and payload electronics subsystem for DubaiSat-2, along with being a systems engineer of that project. Prior to EMM, Omran was Director of the Programs Management Department at MBRSC, which was responsible for defining new strategic programs, the project management office and the product and mission assurance functionalities of the Centre.

Omran earned his bachelor's degree in Electrical Engineering from the University of Virginia, USA, in 2005, and his Master's in Science and Technology Policy from the Advanced Institute of Science and Technology (KAIST), South Korea, in 2013.

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**José Antonio Rodríguez Manfredi**  
**Scientist, Department of Advanced Instrumentation,**  
**INTA - Centro de Astrobiología (CAB), Spain**

José A Rodríguez-Manfredi is a scientist in the Department of Advanced Instrumentation at INTA - Centro de Astrobiología (CAB) in Madrid, Spain, of which he was head of department from 2010 to 2015. Since 2012 he has been the Principal Investigator of the Space Instrumentation Research Group at CAB.



Dr. Rodríguez Manfredi is the Principal Investigator of the TWINS (Temperature and Winds for InSight) space instruments on NASA's InSight mission (on Mars since November 2018), and MEDA (Mars Environmental Dynamics Analyzer) on NASA's Mars 2020 mission (on Mars since last February 18). He is also co-investigator and mission manager of the REMS (Rover Environmental Monitoring Station) instrument that has been exploring Mars aboard Curiosity since 2012.

Dr. Rodríguez Manfredi has led as Principal Investigator, or contributed as researcher, to numerous Research and Development projects funded by the European Commission, the State Research Agency (and previous equivalent agencies), as well as autonomic and local agencies, and other institutions.

His interest is focused on the science and development of instrumentation for the characterization of environmental and geobiological conditions of the subsurface of other planets, especially Mars.

Dr. Rodríguez Manfredi is very involved in science outreach, participating very actively in outreach programs, talks in schools, universities, etc.

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**Professor Javier Martin-Torres, FRAS**  
**Chair of Planetary Sciences, University of Aberdeen in**  
**Scotland, UK**



Professor Martin-Torres is Chair of Planetary Sciences at the School of Geosciences, University of Aberdeen in Scotland, UK. He is a NASA Award-winning theoretical physicist with interdisciplinary research interests and one of the most widely cited planetary researchers in the world. He has more than 20 years of experience working on space missions to study the atmosphere of Earth and other planets. He boasts an extensive international career that started as a Guest PhD at the University of Oxford, followed by securing a highly sought-after European Space Agency Postdoctoral Fellowship in Germany. He then spent many years based in the USA, including seven years at NASA Langley Research Centre, Hampton; five years at the Jet Propulsion

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Laboratory, Pasadena; the California Institute of Technology; the Lunar and Planetary Institute at the University of Arizona, and most recently at the Luleå University of Technology, Sweden, and the Spanish Research Council, Spain. Prof. Martín-Torres recently joined the University of Aberdeen, leading the Department of Planetary Sciences.

He is co-Investigator of the Mars Science Laboratory mission and Principal Investigator of the HABIT instrument on the ExoMars 2022 mission.

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### **Dimitra Atri**

#### **Lead, Mars Research Group, NYU Abu Dhabi's Center for Space Science, UAE**



He is an astrophysicist interested in exoplanetary atmospheres, star-planet interactions, Mars, planetary habitability, and space weather.

Before coming to NYUAD, he was a Research Scientist at Blue Marble Space Institute in Seattle (USA) and a Visiting Scientist at the Tata Institute of Fundamental Research in Mumbai (India). He earned his PhD in Physics from the University of Kansas (USA). He is a lead author of numerous publications in international peer-reviewed scientific journals. He regularly serves on committees of NASA and the National Science Foundation (USA) and referees for major astrophysics, planetary science, and astrobiology journals.

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### **Dr. Michaela Musilová**

#### **Director, HI-SEAS simulated missions, Slovakia**



Dr. Musilova is an astrobiologist with a focus on life in extreme environments. Musilova's space research experience includes working at the NASA Jet Propulsion Laboratory; University of London Observatory; on NASA's and UK Space Agency's MoonLite project; being an analogue astronaut in NASA's and the University of Hawaii (UH)'s HI-SEAS simulated mission to Mars, and commander of such a mission at the Mars Desert Research Station. She is currently the Director for HI-SEAS missions, as part of UH and the International MoonBase Alliance.

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## **Virtual contributions**

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### **Dr. Mazlan Othman**

#### **Director of the International Science Council (ISC) Regional Office for Asia and the Pacific (ROAP), Malaysia**



Mazlan obtained a Ph.D. in Astrophysics from the University of Otago, New Zealand, and became a lecturer at the Universiti Kebangsaan Malaysia (UKM) in 1981. Seconded to the Prime Minister's Department in 1990 to set up and head the Planetarium Division, which subsequently became the Space Science Studies Division in 1993. Appointed by Universiti Kebangsaan Malaysia as Professor of Astrophysics in 1994. Appointed Director of the United Nations Office for Outer Space Affairs (UNOOSA) in Vienna, Austria in 1999. Returned to Malaysia to become the founding Director General of the National

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Space Agency (ANGKASA) beginning July 2002. In this capacity she established the National Observatory in Langkawi and National Space Centre in Selangor. She headed the National Angkasawan (Astronaut) Programme which saw the launch of the first Malaysian to the International Space Station in 2007. She was responsible for the launch of Malaysia Remote Sensing Satellites : TiungSAT and RazakSAT. She attended the Advanced Management Programme (AMP169) at Harvard Business School in 2005. Resumed post as Director of UNOOSA in December 2007 upon retirement from Malaysian Civil Service. Appointed Deputy Director-General of the United Nations Office at Vienna (UNOV) in June 2009. Retired from the United Nations in Dec 2013. Appointed Project Director, Mega Science 3.0 at Academy of Sciences Malaysia (ASM) 2014 -2016. Became Professor Emeritus at UKM in 2015 and was a Fulbright Scholar at the Space Policy Institute of George Washington University 2015-2016. Elected Senior Fellow of ASM in 2016. She is co-chaired the ASM Malaysia Foresight 2050 initiative. Currently the Director of the International Science Council (ISC) Regional Office for Asia and the Pacific (ROAP) since 2017.

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### **Rajeswari Pillai Rajagopalan**

**Director, Centre for Security, Strategy & Technology (CSST), Observer Research Foundation, New Delhi - India**

Dr. Rajeswari (Raji) Pillai Rajagopalan is the Director of the Centre for Security, Strategy & Technology (CSST) at the Observer Research Foundation, New Delhi. Dr. Rajagopalan was the Technical Advisor to the United Nations Group of Governmental Experts (GGE) on Prevention of Arms Race in Outer Space (PAROS) (July 2018-July 2019). She was also a Non-Resident Indo-Pacific Fellow at the Perth USAsia Centre from April-December 2020. As a senior Asia defence writer for The Diplomat, she writes a weekly column on Asian strategic issues. Dr. Rajagopalan joined ORF after a five-year stint at the National Security Council Secretariat (2003-2007), Government of India, where she was an Assistant Director. Prior to joining the NSCS, she was Research Officer at the Institute of Defence Studies and Analyses, New Delhi. She was also a Visiting Professor at the Graduate Institute of International Politics, National Chung Hsing University, Taiwan in 2012.



Dr. Rajagopalan has authored or edited nine books including Global Nuclear Security: Moving Beyond the NSS (2018), Space Policy 2.0 (2017), Nuclear Security in India (2015), Clashing Titans: Military Strategy and Insecurity among Asian Great Powers (2012), The Dragon's Fire: Chinese Military Strategy and Its Implications for Asia (2009). She has published research essays in edited volumes, and in peer reviewed journals such as India Review, Strategic Studies Quarterly, Air and Space Power Journal, International Journal of Nuclear Law and Strategic Analysis. She has also contributed essays to newspapers such as The Washington Post, The Wall Street Journal, Times of India, and The Economic Times. She has been invited to speak at international fora including the United Nations Disarmament Forum (New York), the UN Committee on the Peaceful Uses of Outer Space (COPUOS) (Vienna), Conference on Disarmament (Geneva), ASEAN Regional Forum (ARF) and the European Union.

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