



American Institute of Aeronautics and Astronautics
Los Angeles - Las Vegas Section



Welcome to the AIAA Los Angeles – Las Vegas Section Space Philosophy Gathering 2021

Saturday, August 14th, 2021

10:00 am – 4:00 pm PDT (GMT-0700)

An AIAA LA-LV Virtual Event on Zoom

RSVP and Information: <https://conta.cc/2SNw3J7>

(All Time PDT, Pacific Daylight-Saving Time, US & Canada, GMT-0700)

10:00 AM: Mr. Dan Dumbacher (AIAA Executive Director) – Welcome

10:10 AM: Prof. Madhu Thangavelu (Moderator) – "Introduction to Space Philosophy"

10:30 AM: Mr. Luke Jerram – "Museum of the Moon"

10:45 AM: Dr. Jacques Arnould – "Space Oddity? A brief philosophical meditation inspired by David Bowie"

11:00 AM: Mark Wagner, Ph.D. – "The Moon Village School: Challenges, Designs, and Expert Feedback"

11:15 AM: Dr. Gennaro Russo, Ph.D. – "The Cislunar City anticipated by the Center for Near Space"

11:30 AM: Prof. Christopher Cokinos – "Engineering the Arts for Space: Concept of "Mission Laureates"

11:45 AM: Atty. Michelle Hanlon – "Why Protect the Bootprints?"

12:00 PM: Mr. John C. Mankins – "The Space Technological Sublime"

12:15 PM: Dr. David H. Levy – "A Nightwatchman's Journey: The Road Not taken."

12:30 PM: Dr. Niamh Shaw – "Beyond the Space bubble- the importance of engaging the disengaged"

12:45 PM: Ms. Britt Duffy Adkins – "Resisting a Static Space Society: Designing for Adaptability and Transience"

01:00 PM: Ms. Melodie Yashar – "Envisioning A First Peoples"

01:15 PM: Leslie Wickman, Ph.D. – "How the Awe-Response Triggered by Nature Stimulates Exploration"

01:30 PM: Mr. Frank White – "Overview Effect & Cosma Hypothesis"

01:45 PM: Dr. Stan Rosen – "Will Space Settlement Change Humans?"

02:00 PM: Lawrence (Larry) Downing, DMin – "Beyond Earth: The Human Venture to the New Frontier"

02:15 PM: Mr. Henk Rogers – "Why are we here? What is our purpose?"

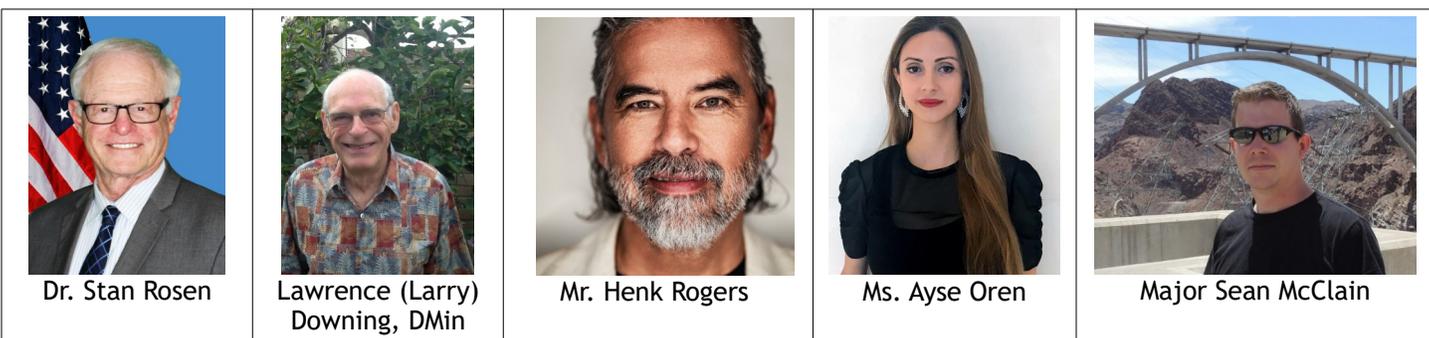
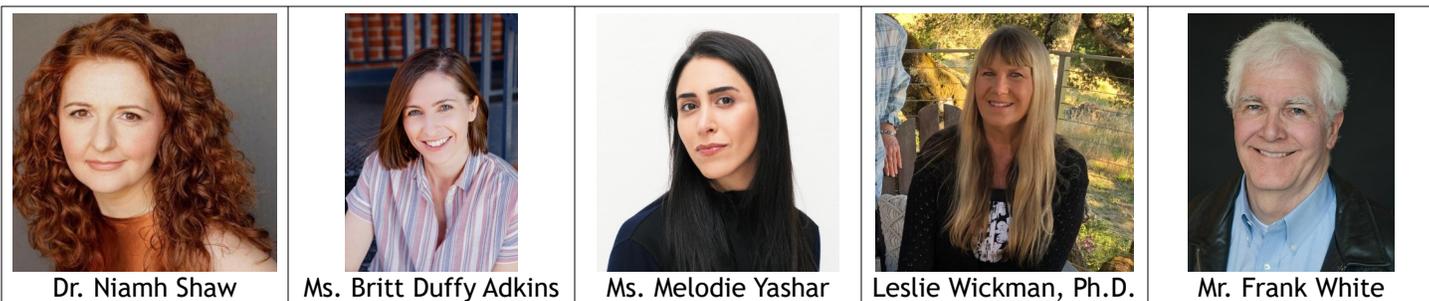
02:30 PM: Ms. Ayse Oren – "Carving the Moon"

02:45 PM: Maj. Sean McClain – "Space Domain Awareness and In-Space Personnel Recovery"

03:00 PM: Prof. Wes Jones – "The Astronaut's Memorial"

03:15 PM: Concluding Panel (Added: Mr. Howard Bloom and Dr. Lawrence H Kuznetz)

04:00 PM: Adjourn



Disclaimer: The views of the speakers do not represent the views of AIAA or the AIAA Los Angeles-Las Vegas Section.



Mr. Dan Dumbacher (Opening Speech)
Executive Director, AIAA
AIAA Associate Fellow

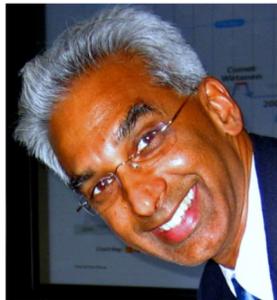
Mr. Dan Dumbacher is the Executive Director of the American Institute of Aeronautics and Astronautics (AIAA).

Before joining the AIAA staff in January 2018, Dumbacher was a Professor of Engineering Practice in the School of Aeronautics and Astronautics at Purdue University, where he taught courses in systems thinking, systems engineering, and space policy.

Prior to Purdue, Dumbacher served as the Deputy Associate Administrator, Exploration Systems Development Division, Human Exploration and Operations Mission Directorate at NASA Headquarters.

In that capacity, he provided leadership and management as the Program Director for Exploration Systems Development, which included: the Space Launch System, Orion, and Ground Systems Development and Operations development and integration efforts. He led a national team of over 5,000, spanning all NASA centers and industry, and was responsible for a \$3 billion annual budget.

During his career, he has received numerous awards and honors including the coveted Silver Snoopy Award and the NASA Distinguished Service Medal. In 2015, Purdue recognized him with the Gustafson Teaching Award.

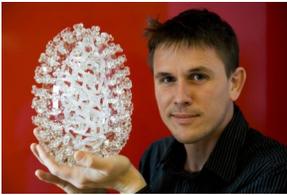


"Introduction to Space Philosophy"
Prof. Madhu Thangavelu (Moderator)
AIAA Member

Director and Faculty Member, USC / ISU
Vice President, National Space Society
N.American Activities Coordinator, Moon Village Association
[Madhu Thangavelu - Press Room USC USC](#)

Madhu Thangavelu conducts the ASTE 527 graduate Space Exploration Architectures Concept Synthesis Studio in the Department of Astronautical Engineering within the Viterbi School of Engineering at the University of Southern California. He also teaches the Arch599 Extreme Environment Habitation Design Seminar in the School of Architecture, where he is a graduate thesis adviser. Mr. Thangavelu's educational background is in Architecture (Masters in Building Science, USC School of Architecture 1989) and in Engineering (Bachelors in Science and Engineering, National Institute of Technology, Calicut, India, 1980). He is also a graduate of the inaugural summer session of the International Space University held at MIT in 1988. Versions of Madhu's masters thesis (conceived during ISU '88 at MIT) entitled "MALEO: Modular Assembly in Low Earth Orbit. An Alternate Strategy for Lunar Base Establishment" were published in several journals worldwide. At USC, he was mentored by and worked as a research assistant and research associate under Dr. Eberhardt Rechtin, professor of Electrical, Systems and Aerospace Engineering, (while he was creating the Systems Architecting Engineering program at USC), considered the chief architect of NASA's Deep Space Network and President Emeritus of Aerospace Corp. He is a co-author of the book "The Moon: Resources, Future Development and Colonization", John Wiley & Sons 1999, and the second Springer/Praxis edition was published in 2007, third edition in preparation. He is a former Vice Chairman for Education, Los Angeles Section of the American Institute of Aeronautics and Astronautics (AIAA). He has directed Space Exploration Projects at the California Institute of Earth Art and Architecture. Mr. Thangavelu is also the invited author of the chapter "Living On the Moon" in the Encyclopedia of Aerospace Engineering, a major reference work published by John Wiley and Sons in October 2010, updated in 2012. He was on the team that won the coveted NASA NIAC Phase 1 and 2 awards consecutively for developing robotic building technologies on the Moon and Mars with PI Prof. Behrokh Khoshnevis. Mr.

Thangavelu's concept creation work was greatly appreciated for proposing ideas that pointed to the "leading-edge sensor concept" for return to flight of the space shuttle fleet. Mr.Thangavelu is on the faculty of the International Space University, an international organization that offers advanced interdisciplinary, intercultural and international training for promising leaders and space professionals. He is the North American coordinator for the International Moon Village Association and is a Director of the National Space Society(NSS) and also the NSS Vice President and Liaison for NSS India.



"Museum of the Moon"

Mr. Luke Jerram

Installation Artist

Fellow of the Royal Astronomical Society. 2019

Visiting Fellow Faculty of Health and Applied Sciences, University of West of England. 2018

[Luke Jerram](#)

Luke Jerram's multidisciplinary practice involves the creation of sculptures, installations and live arts projects. Living in the UK but working internationally since 1997, Jerram has created a number of extraordinary art projects which have excited and inspired people around the world. He is now known globally for his innovative arts practice and large scale public artworks.

With many of his artworks in permanent collections including the Metropolitan Museum of Art in New York and the Wellcome Collection in London, he also tours his art installations to art festivals and museums. Working with some of the most established cultural organisations to create his artworks, in 2019 alone, he had 117 exhibitions in 22 different countries around the world.

In 2020 was given an Honorary Doctorate from the University of Bristol, made an Honorary Academician of the RWA and Fellow of the Royal Astronomical Society.

In 2019 he set up and funded both the Dreamtime Fellowship to support recent graduates in his home city of Bristol and the Bristol Schools Arts Fund to support secondary schools in Bristol impacted by austerity.

His artwork the Museum of the Moon is one of Luke's most successful arts projects that has caught the public's imagination which so far has been presented in different ways, more than 150 times in 30 different countries. Experienced by more than 10 million people worldwide, the artwork has recently toured India with the British Council, been presented at the Commonwealth Games in Australia, Art Basel in Miami 2020 and exhibited in Aarhus, Denmark for the European Capital of Culture. In 2019 it was presented at Glastonbury Festival and even on BBC's Strictly Come Dancing in Blackpool. With universal appeal, the exhibit has been breaking audience records in venues around the globe. 2.1 million people visited the artwork when it was presented at the National History Museum, making it one of the most popular exhibits in the institutions history.

Learning from each artwork and moving on, Jerram is continually re-inventing his arts practice. As his practice is well known yet quite diverse, Luke Jerram was described by Bloomberg Television as "probably the most famous artist you've never heard of".

Over time, narratives connecting Jerram's different artworks have emerged and continue to be developed. Published in 2020 the new book Luke Jerram: Art, Science & Play provides a fascinating insight into his evolving practice. With over fifty colour photographs the publication delves into the mind of an artist known for his imaginative ability to combine art, science and play. The book can be purchased here.



"Space Oddity? A brief philosophical meditation inspired by David Bowie"

Dr. Jacques Arnould

Historian of sciences and Catholic theologian
Ethics Adviser of CNES (French Space Agency)
[Jacques Arnould — Wikipédia \(wikipedia.org\)](#)

Jacques Arnould (born March 17, 1961) is a French historian of science and Catholic theologian. Jacques Arnould holds a degree in agricultural engineering, a doctorate in the history of science and in 1997 a doctorate in theology. He is in charge of ethical issues at the Centre national d'études spatiales (CNES). He left the Dominican order in 20115.



"The Moon Village School: Challenges, Designs, and Expert Feedback"

Mark Wagner, Ph.D.

Co-Founder

ARES Learning (**A**cademy for the **R**elentless **E**xploration of **S**pace)

Jacques Arnould (born March 17, 1961) is a French historian of science and Catholic theologian. Jacques Arnould holds a degree in agricultural engineering, a doctorate in the history of science and in 1997 a doctorate in theology. He is in charge of ethical issues at the Centre national d'études spatiales (CNES). He left the Dominican order in 20115.



"The Cislunar City anticipated by the Center for Near Space"

Dr. Gennaro Russo, Ph.D.

Co-Founder and Director General

Center for Near Space of the Italian Institute for the Future

Co-founder and President, Trans-Tech

Member, International Academy of Astronautics

[Center for Near Space – Italian Institute for the Future](#)

Dr. Gennaro Russo is presently member of the technical staff of DAC, the Aerospace District of Campania Region, managing Space and Defense activities. He is member of the International Academy of Astronautics and co-founder and director general of the Center for Near Space, of the Italian Institute for the Future, devoted mainly to developments about Expansion of Humanity in Space. In 2013, he co-founded Space Renaissance Italia assuming the role of president up to May 2015.

He is co-founder and President of TRANS-TECH, an SME devoted to technology transfer and very high tech projects. He is co-conceiver and project manager of the HYPLANE project.

He worked at CIRA, the Italian Aerospace Research Center, for some 25 years managing almost all space related programs, projects and facilities, mostly devoted to space transportation and reentry.

He led in particular the PRORA-USV program, playing the role of flight director for balloon-dropped trans-supersonic flight tests. He was designer of the 70MW SCIROCCO Plasma Wind Tunnel for duplicating reentry aerothermodynamics conditions.

At the beginning of his career, he worked for about ten years with the Microgravity Research Team led by Luigi G. Napolitano at University of Naples, designing, preparing and analyzing some experiments executed on board the ESA Spacelab.



"Engineering the Arts for Space: Developing the Concept of "Mission Laureates"

Prof. Christopher Cokinos

Professor of English

Affiliated Faculty, Arizona Institutes for Resilience
Affiliated Faculty, Social, Cultural and Critical Theory
Mentor, Carson Scholars program
University of Arizona

D(Prof. Christopher Cokinos) I have traveled by open boat 600 miles north of the Arctic Circle in search of the sites of three giant iron meteorites and once spent weeks living in a tent on the Antarctic plateau to document the work of scientists in that icy place. I've suited up as an analogue astronaut during a stint at the Mars Desert Research Station and allowed myself to be stationed in habitats at Biosphere 2 in order to write poetry. I've tracked down the identity and history of the young Ohio farm boy who inadvertently killed the last known wild Passenger Pigeon and I have worked in archives and libraries around the world.

All of this was in pursuit of stories, and stories form the backbone of my two research-driven nonfiction books, *The Fallen Sky: An Intimate History of Shooting Stars* (Tarcher/Penguin 2009), and *Hope Is the Thing with Feathers: A Personal Chronicle of Vanished Birds* (Tarcher/Penguin 2000), both of which were published to wide acclaim. Story could also be said to be at the heart of my three collections of poetry and lyric essays: *Held as Earth; Bodies, of the Holocene;* and *The Underneath*. As an anthologist, I've sought to bring the voices of others to new audiences, co-editing *The Sonoran Desert: A Literary Field Guide*, and, most recently, *Beyond Earth's Edge: The Poetry of Spaceflight*, which has been featured or reviewed in such venues as "Planetary Radio," *Scientific American* and "The Open Mind" on PBS.

Articles, poems and essays about space and astronomy are recent or forthcoming in *Sky & Telescope*, *The Space Review*, *SkyNews* and the *Los Angeles Times*, to which I contribute op-eds. My work has been featured or reviewed in many venues, including NPR's "All Things Considered," *USA Today*, *People*, *Science*, *The New Yorker*, *Nature* and Michio Kaku's "Science Fantastic."

I have won fellowships and awards from multiple establishments, including the Whiting Foundation, the National Science Foundation and the Rachel Carson Center in Munich. Other awards include the John Burroughs Prize for Best Natural History Essay, the Sigurd Olson Nature Writing Award, the Glasgow Prize for an Emerging Writer, a UCLA Institute of Environment and Sustainability Journalism Fellowship and the New American Press Poetry Prize.

At the University of Arizona, I am a Professor of English who teaches creative writing, the history of science fiction, and science communication. Former students have gone on to publish books with Little, Brown; William Morrow; Orbit; Broadway; Georgia and other presses. Through the Carson Scholars Program I have helped mentor nearly 100 young scientists to speak and write with accuracy and passion, work that has been recognized by a Graduate and Professional Student Council Mentor of the Year Award.

When not at the keyboard, these days I can often be found "hiking" the surface of the Moon through the eyepiece of my 10-inch telescope for an ongoing book project about the hunk of rock that circles this place we call home.



"Why Protect the Bootprints?"

Atty. Michelle Hanlon

Co-Director, Center for Air & Space Law, University of Mississippi School of Law
Editor-in-Chief, Journal of Space Law
Faculty Advisor, Journal of Drone Law and Policy
President, National Space Society
Co-Founder, For All Moonkind, Inc.

Atty. Michelle Hanlon is Co-Director of the Center for Air and Space Law at the University of Mississippi School of Law. She is the Editor-in-Chief of the Journal of Space Law, the world's oldest law journal dedicated to the legal problems arising out of human activities in outer space and the Faculty Advisor for its sister publication, the Journal of Drone Law and Policy. Michelle is the President of the National Space Society and a Co-Founder of For All Moonkind, Inc., a nonprofit corporation that is the only organization in the world focused on protecting human cultural heritage in outer space. For All Moonkind has been recognized by the United Nations as a Permanent Observer to the United Nations Committee on the Peaceful Uses of Outer Space.



"The Space Technological Sublime"

Mr. John C. Mankins

AIAA Associate Fellow

Founder and President of Mankins Space Technology, Inc.,
President of Artemis Innovation Management Solutions LLC,
Vice President and member of the Board of the Moon Village Association,
A member of the faculty of the online Kepler Space Institute (KSI),
Formerly Chief Technologist for Human Exploration and Development
of Space (HEDS) at NASA Headquarters in Washington, D.C.

John C. Mankins has been recognized as the leading expert in the field of space solar power (SSP). He is an entrepreneur and internationally recognized leader in technology and systems innovation and management. He is the Founder and President of Mankins Space Technology, Inc., the President of Artemis Innovation Management Solutions LLC, Vice President and member of the Board of the Moon Village Association, and is a member of the faculty of the online Kepler Space Institute (KSI). He was formerly Chief Technologist for Human Exploration and Development of Space (HEDS) at NASA Headquarters in Washington, D.C.

Mr. Mankins' 25-year career at NASA Headquarters and Caltech-operated NASA Jet Propulsion Laboratory (JPL) ranged from flight projects and space mission operations, to systems-level innovation and advanced technology R&D management. Before leaving NASA, Mr. Mankins planned, proposed to the White House and managed the Exploration Systems Research and Technology (ESR&T) program within the Exploration Systems Mission Directorate with responsibility for an \$4B total (\$850M annual) budget, involving more than 100 individual projects and some 10,000 personnel. He was the lead for NASA's Lunar Outpost team in 2003, providing the key concepts that led to the Vision for Space Exploration (VSE) in 2004.

Mankins managed NASA's programs in the area of space solar power during 1995-2003. He co-chaired the first assessment of SSP by the International Academy of Astronautics (IAA) from 2008 to 2011, and in 2012 was Principal Investigator of a NASA-supported investigation of a novel Solar Power Satellite (SPS) concept that he invented: SPS-ALPHA (SPS by means of Arbitrarily Large Phased Array). He has published numerous papers and written/edited two books on the subject.

Mankins is well-known as an innovator in R&D management. Building on the original 1970s-era NASA 'technology readiness level' (TRL) scale for technology assessment, he extended the scale to flight systems and operations in the late 1980s (TRLs 8 and 9), published the first detailed definitions of the TRLs in 1995, and promoted the use of the scale by the US Department of Defense in the late 1990s. He also created the concept of the Integrated

Technology Readiness and Risk Assessment (TRRA), including two new R&D metrics: the R&D Degree of Difficulty (R&D3), and the Technology Need Value (TNV). He has lectured on numerous occasions on this topic in various countries in Europe, North America and Asia.

Mankins holds undergraduate (Harvey Mudd College) and graduate (UCLA) degrees in Physics and an MBA in Public Policy Analysis (The Drucker School at Claremont Graduate University). Mr. Mankins is a member of the International Academy of Astronautics (IAA) and past chair of the Academy Commission III (Space Systems and Technology Development) and the International Astronautical Federation (IAF) Power Committee. He is also a member of the National Space Society, a past Associate Fellow of American Institute of Aeronautics and Astronautics (AIAA), and a member of the Sigma Xi Research Society.

Mankins has testified before the US Congress on several occasions, and lectured widely in the US and Internationally, including at TEDx@GoodenoughCollege in 2012 and TEDx@LagunaBlancaSchool in 2019. He has published more than 85 papers and journal articles in a wide range of fields, and was the editor of the IAA book: "The First International Assessment of Space Solar Power" (2011). He has published one book, "The Case for Space Solar Power" (January 2014), which makes the first integrated business case in more than a decade for solar power from space. His work was featured in an episode of the Discovery Channel's "Project Earth" (2008) and Mankins appeared in an episode of The Weather Channel's "Weather Gone Viral" (2017).

Mr. Mankins has received numerous awards and honors during his career, including the prestigious NASA Exceptional Technology Achievement Medal (of which he was the first recipient). He has been recognized in "Who's Who" on various occasions and was named by SpaceNews as one of the "100 People Who Made a Difference in Space" (during 1989-2004) - a distinction he shared with NASA Administrators O'Keefe (former) and Griffin (current), as well as with former Congressman Robert Walker, innovator Burt Rutan, and others. He received the National Space Society "Space Pioneer" Award in 2009, an honor he shares with Mr. Elon Musk, US Senator John Glenn, Dr. Woerner von Braun, author Ray Bradbury and others.

Mankins lives on a family Ranch on the California Central Coast with his wife and daughter, four cats, one dog, and assorted cattle, turkeys, coyotes, bobcats, foxes, etc. He is currently working on several book projects.



"A Nightwatchman's Journey: The Road Not taken."
Dr. David H. Levy, Wendee's Husband
Comet and Asteroid Hunter,,
Co-Discoverer, Shoemaker-Levy 9
Editor of the web magazine Sky's Up!
Columnist, Skyward, in the local Vail Voice paper,
Emmy Award Winner, "Three Minutes to Impact" Documentary ,
Five honorary doctorates in Science and
a PhD which combines astronomy and English Literature

"A Nightwatchman's Journey: The Road Not taken."

The major reason I became interested in the night sky was that it offered a permanent friendship free of risk (or so I thought). I was a very shy person with few friends, and I actually still view the stars as personal friends. As years went by I got better at it. A brief lecture about comets to my 6th grade class in 1960 led to my special fascination with comets, and I began my comet search program on December 17, 1965. During my youth, my father strongly encouraged me to acquire an interest in Shakespeare. (I fantasized that he would take me out of his will if I didn't.) In 2010 I successfully completed a dissertation on the night sky in the time of Shakespeare.

Dr. David H Levy, Wendee's Husband

A short bio for a tall man.

David H Levy is arguably one of the most enthusiastic and famous amateur astronomers of our time. Although he has never taken a class in astronomy, he has written over three dozen books, has written for three astronomy magazines and has appeared on television programs featured on the Discovery and the Science Channels. Among David's accomplishments are 23 comet discoveries, the most famous being Shoemaker-Levy 9 that collided with Jupiter in 1994, a few hundred shared asteroid discoveries, an Emmy for the documentary Three Minutes to Impact, five honorary doctorates in Science and a PhD which combines astronomy and English Literature. Currently, he is the editor of the web magazine Sky's Up!, has a monthly column, Skyward, in our local Vail Voice paper. David continues to hunt for comets and asteroids, and lectures worldwide.



"Beyond the Space bubble- the importance of engaging the disengaged"

Niamh Shaw, BE MEngSC PhD

Irish Performer & Writer, with two degrees in engineering and a PhD in Science Faculty, International Space University

Beyond the Space bubble- the importance of engaging the disengaged

We know from studies on public understanding of science that there is strong interest in science at age 10 with little gender difference but the engagement of science in young adults aged 14 years upwards is poor. If a child is surrounded by a community who understands the relevance of science and space in society, then there is a higher likelihood that the child will too. Encouraging adults and older citizens to understand the relevance of space in society will benefit not only themselves but their larger community of influence. But some communities are more socially-disadvantaged than others, and in order for every citizen to have STEM agency, we need to provide an equitable, diverse and inclusive approach to STEM learning in the community. In this talk, I outline how creativity, working directly with communities and the practice of co-design may better equip Earth citizens to demand an equitable and sustainable space sector in our future.

Bio:

Dr. Niamh (pronounced 'Neeve') Shaw is an Irish performer & writer scientist & engineer. She is passionate about igniting peoples curiosity and sharing a new, more sustainable perspective of Earth from Space. Creator of theatre shows, public events, podcasts and videos she's an award-winning communicator and in 2020, she published her first book, 'Dream Big'.



"Resisting a Static Space Society: Designing for Adaptability and Transience"

Ms. Britt Duffy Adkins

Architecture School, Wellesley College,
Space Resources, Colorado School of Mines
First Space Urban Planner & Founder of Celestial Citizen

Ms. Britt Duffy Adkins is the first space urban planner and founder of Celestial Citizen. She is passionate about the intersection of urban planning, engineering, science, and social justice as humans look to build new societies in space. Celestial Citizen is a platform for promoting a more equitable and just vision of planetary settlement beyond Earth. This organization seeks to encourage conversation about how to be a better interplanetary citizen and responsible steward of Earth at the same time. Key initiatives include making space exploration and space urban planning a diverse and inclusive enterprise, while promoting a sustainable presence across the solar system. Britt also hosts the Celestial Citizen Podcast where she looks to spark unique conversations about the human factors that

will be essential to our long-term survival and evolution into a spacefaring civilization. She is currently enrolled at the University of Southern California's Price School of Public Policy pursuing a Master of Urban Planning, and recently graduated from the Colorado School of Mines, where she received a Master of Science in Space Resources. She also graduated from the MIT-Wellesley Double Degree program where she received the S.B. in Urban Studies & Planning from the Massachusetts Institute of Technology and a B.A. from Wellesley College in Architecture. Prior to Celestial Citizen, Britt worked in asset management and real estate development before focusing full-time on her desire to help plan the first cities on the Moon and Mars. She currently lives in Pasadena, CA with her husband and three children.



"Envisioning A First Peoples"

Ms. Melodie Yashar

AIAA Member

Design Architect, Technologist, and Researcher
 Head of Architecture & Building Performance at ICON,
 Pioneering the future of 3D-printed housing on Earth and space

Melodie Yashar is a design architect, technologist, and researcher. She is the Head of Architecture & Building Performance at ICON, a startup pioneering the future of 3D-printed housing for Earth and space. Melodie is a professor at Art Center College of Design where she teaches "Life on the Moon." Melodie has been a senior researcher in human factors at NASA Ames via San Jose State University Research Foundation, a co-founder of Space Exploration Architecture (SEArch+), a group developing human-supporting concepts for space exploration. Melodie was a leader and member in teams that won first prize in both of NASA's design solicitations for 3D-printed Habitats: in Phase 1 for "Mars Ice House" and in Phase 3 for "Mars X-House."



"How the Awe-Response Triggered by Nature Stimulates Exploration"

Leslie Wickman, Ph.D.

Chief Executive Officer at Starry Nights, Inc.

Internationally known research scientist, engineering consultant, author and inspirational speaker

Leslie Wickman, Ph.D, is an internationally known research scientist, engineering consultant, author and inspirational speaker.

For more than a decade Wickman was an engineer for Lockheed Martin Missiles & Space, where she worked on NASA's Hubble Space Telescope and International Space Station Programs, receiving commendations from NASA for her contributions and being designated as Lockheed's Corporate Astronaut (hence the nickname "Rocket Girl").

Wickman recently resigned from four years as Executive Director of the non-profit American Scientific Affiliation, and now divides her time between running her new non-profit "Starry Nights, Inc.", and teaching math and science at Azusa Pacific University.

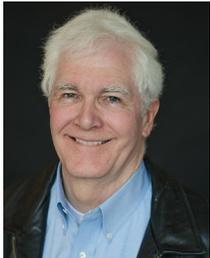
She also works on selective projects involving technical and policy aspects of national aerospace and defense issues. Some of her recent projects include climate change impacts on national security, assessment of future human spaceflight missions and technologies, human factors problems for extreme environments, sustainable agriculture and water reclamation.

Dr. Wickman has lectured around the world on satellite servicing, spaceflight physiology, astronaut training and operations, as well as various topics in astronomy, environmental stewardship, and most importantly, her heartfelt passion: the interplay between science and theology.

Wickman is also a dedicated athlete, playing competitive beach doubles volleyball with CBVA & FIVB, as well as both indoor and beach volleyball for Athletes in Action in Bolivia, Brazil, and South Africa. She is now retired from women's professional tackle football, but not before earning All-Conference recognition and helping her team, the California Quake, win the Women's World Bowl.

Another noteworthy achievement is her role with WET Design in R&D and programming for the Bellagio Fountains in Las Vegas.

Wickman holds a master's degree in aeronautical and astronautical engineering and a doctoral degree in human factors and biomechanics, both from Stanford University. She graduated magna cum laude from Willamette University with a bachelor's degree in political science.



"Overview Effect & Cosma Hypothesis"

Mr. Frank White

Author. Space Philosopher. Consultant.

[Frank White - Author of The Overview Effect \(frankwhiteauthor.com\)](http://frankwhiteauthor.com)

Frank White has authored or coauthored numerous books on topics ranging from space exploration to climate change to artificial intelligence. His best-known work, *The Overview Effect: Space Exploration and Human Evolution*, is considered by many to be a seminal work in the field of space exploration. A film called "Overview," based largely on his work, has had nearly 8 million plays on Vimeo.

Since the first edition of his book on the subject was published in 1987, "the Overview Effect" has become a standard term for describing the spaceflight experience. The fourth edition of *The Overview Effect*, including original interviews with 31 astronauts, is scheduled for publication in 2019.

White considers himself to be a "space philosopher," and has long advocated developing a new philosophy of space exploration. His book on this topic, *The Cosma Hypothesis: Implications of the Overview Effect*, has just been published. In it, he asks the fundamental question, "What is the purpose of human space exploration? Why has the evolutionary process brought humanity to the brink of becoming a spacefaring species?"

In the book, he shares the idea of "the Human Space Program" as a "central project" that will engage all of us in the process of becoming "Citizens of the Universe."

Frank and his wife Donna live outside Boston, Massachusetts.



"Will Space Settlement Change Humans?"

Dr. Stan Rosen

Professor of Program Management at the Defense Acquisition University (DAU)

AIAA Associate Fellow

Advisory Board Member, National Space Society

Author "Mind in Space" (1976)

Dr. Rosen held scientific, engineering, program management, strategy, and policy development positions with the US Air Force, where he worked on a wide variety of NASA, Air Force and classified space activities. He also held various executive positions at Hughes Electronics and Boeing Space Systems, and served as Chairman of the California Space Authority. He is currently Professor of Program Management at the Defense Acquisition University (DAU).

Dr. Rosen earned a BS from the U.S. Air Force Academy, a MS in Aerospace Engineering from the Massachusetts Institute of Technology, an MS in Systems Management from the University of Southern California, and a Doctor of Engineering degree from the University of Stuttgart, Germany.



"Beyond Earth: The Human Venture to the New Frontier"

Lawrence (Larry) Downing, DMin

Retired after more than 40 years as a parish minister serving Seventh-day Adventist churches on both coasts

Lawrence "Larry" Downing, after serving more than 40 years in parishes on both US coasts, retired in 2007. He and his wife, Arleen House-Downing, MD, to whom he has been married a long, time, have three children and six grandchildren.

Larry enjoys travel, writing, reading, riding his bike along the American River and walking the Morro Bay waterfront. He has no specific hobby but over the years has accumulated way too many books—is it possible to have too many books? In 1964 an FAA inspector determined that Larry demonstrated sufficient flying skills to be granted his SEL pilot's license; he does not have a current Physical but, like numerous once upon a time pilots, continues to pay attention to what is taking place in the aeronautical world.

His study of world religions and the theological forces that impact and guide human behavior have been a life-long pursuit. It is a challenge to understand and explain how it is that the beliefs and behaviors intended to benefit Earth and its inhabitants too often produce negative and destructive ends. How does one explain that too often evil triumphs over good? These are factors that seek answer and spur one to explore alternatives.

EDUCATION

DOCTOR OF MINISTRY, Lancaster Theological Seminary, 1982.

MASTOR OF ARTS, Andrews University, Department of Antiquities, 1964.

MASTOR OF DIVINITY, Andrews University, New Testament Studies, 1965

BACHELOR OF ARTS, Pacific Union College, 1963

ACADEMIC EXPERIENCE

Kepler Space Institution, Dean, Department of Human Factors for Space Settlement, 2018-present

Adjunct Professor, Pacific Adventist University Papua New Guinea, (MBA Extension Class), 2016, 2020

Andrews University Seminary, 2015

Loma Linda University School of Medicine, 1993

La Sierra University School of Religion, 1989-'96

La Sierra University School of Business and Management 1997-2007

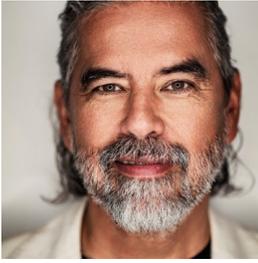
Adventist International Institute of Advanced Studies, 2007

Publications

Values Analysis for Moral Leadership, (Contributing Author,) Bookboon, 2006.

Beyond Earth, The Future of Humans in Space, (Contributing Author,) Apogee Space Book, 2006.

Numerous journals and professional publications.



"Why are we here? What is our purpose?"

Mr. Henk Rogers

President Blue Planet Research (builder of HI-SEAS)
Chairman, Pacific International Space Center for Exploration Systems (PISCES)
Founder, International MoonBase Alliance (operator of HI-SEAS)
Board of Governors, National Space Society(NSS)

Henk Rogers is perhaps best known for his background in computer gaming and managing the worldwide licensing rights to Tetris, one of the most popular video games in history. Following a near-death experience in 2005, Henk found his missions in life and became interested in environmentalism and space exploration. He aims to make a backup of life by exploring and colonizing other planets.

Henk is the owner of the Hawaii Space Exploration Analog and Simulation (HI-SEAS), which served as a NASA Mars mission test facility for five years. He also serves as the Chair of the Pacific International Space Center for Exploration Systems (PISCES). This organization has been working on lunar ISRU, among other initiatives positioning Hawaii as a leader in space exploration. Recently, PISCES successfully created a lunar concrete out of regolith simulant using only heat to cause sintering and create a material stronger than specialty concrete.

In 2017, Henk funded a gathering of space industry leaders to brainstorm the building of a moonbase. Out of this gathering was born the International MoonBase Alliance (IMA) which now manages HI-SEAS Moon mission simulations. IMA is currently working on the design and construction of the first moonbase.

Why are we here? What is our purpose?

What is the reason humans exist?

Surely Gaia could foresee that the selfish gene given supernatural powers would consume nature to the point of self-destruction. The very basis of evolution and biodiversity is being challenged. Without biodiversity, any change in the environment could bring life as we know it, to the brink of extinction.

How can life protect itself from extinction? How can it escape the eventual death of our star? How can it survive an unforeseen astronomical event of biblical proportions? Life must have a backup. It must be a backup far from the planet that begat life. How does "Life As We Know It" (LAWKI) reach a distant Earth-like planet and start to flourish there?

Life as we know it creates a being intelligent enough to build machines that can overcome the force of gravity. A being that can calculate a trajectory for such a machine so that it can actually land on the surface of a celestial body an unimaginable distance from Earth. Life creates a human.

The reason humans exist is to bring life to other planets.

Mother Earth is pregnant. While this pregnancy may be uncomfortable or even deadly to some of the lifeforms that exist on Earth, it will result in LAWKI in creating a whole new set of lifeforms based on our DNA somewhere else. If we can do it once, we can do it a thousand times. LAWKI will have become immortal.

The next phase of human existence is where we go past the consciousness of individuals and move on to the collective consciousness of LAWKI. LAWKI will make backups of life on countless other planets. LAWKI will transform selfish humans into stewards of our one and only home planet, Earth.

LAWKI is already hard at work. Humans are being connected in newer and faster ways, and with more bandwidth. Ideas are moving around the globe at the speed of light. We are going to become a multi-planetary species.

And when we do, LAWKI will be there. LAWKI will be everywhere.



"Carving the Moon"

Ms. Ayse Oren

Founder, DesignArt: Design and Architecture Company

New Worlds Institute: (President- Rick Tumlinson)

Kepler Space Institute: (President- Bob Krone)

[Ayşe Ören - Wikipedia](#)

DESIGNER : Ayse Oren

COMPANY:

DesignArt: Design and Architecture Company (Founder- Ayse Oren)

New Worlds Institute: (President- Rick Tumlinson)

Kepler Space Institute: (President- Bob Krone)

EDUCATION:

High School: TED Ankara Collage

2006 Bilkent University, Architecture and Fine Arts Faculty, Interior Architecture and Environmental Design

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Facebook : AyseOren

Linkedin : spacedancer



"Space Domain Awareness and In-Space Personnel Recovery"

Major. Sean McClain

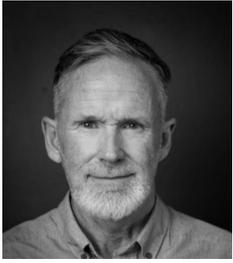
Major, USSF

Sean McClain is currently on active duty with the U.S. Space Force at the 608th Air Operations Center at Barksdale Air Force Base, Louisiana. In March 2020, he completed his 2nd Masters degree through Air University's Air Command and Staff College Online Masters Program (ACSC OLMP). His thesis, "Celestial Sentinels: A Framework for Cislunar Space Domain Awareness in 2035," was cleared for public release in April 2020. Sean is happily married and has one child with his wife, Michelle.

A 2007 graduate of the United States Air Force Academy, he has served multiple operational tours in ICBMs, Missile Warning, and Satellite Command and Control (C2) at Minot AFB, ND; Clear AFS, AK; and Schriever AFB, CO; respectively. His last assignment was a Requirements Lead in the Space Domain Awareness Branch, Space Superiority Division, Directorate for Strategic Requirements, Architectures, and Analysis, Headquarters Air Force Space Command at Peterson AFB, CO between July 2017 and July 2019. Since 2015, Sean's career has also featured extensive science and technology (S&T), experimentation and innovation-related work.

His views expressed are his own and do not represent the USAF, USSF or any other US Government entity.

1. The idea of the new domain for Human Space Flight (HSF) operations (LOCs)
2. The vital importance on maintaining safety in human spaceflight operations in proposed domains
3. What are the potential scenarios that will require "search and rescue: mission
4. Why is this vital to free world values.



"The Astronaut's Memorial"

Prof. Wes Jones

Partner, Jones, Partners: Architecture
Professor of Practice, School of Architecture, USC
JONES.PARTNERS.ARCHITECTURE (jonespartners.com)

Wes Jones is a partner in Jones, Partners: Architecture. Jones' work has been exhibited widely and can be found in the permanent collections of major museums around the world. Princeton Architectural Press has published two monographs of his work, *El Segundo* and *Instrumental Form*. A third volume, tentatively titled *Alameda*, is in the works. A recipient of the Rome Prize from the American Academy in Rome, and Arts and Letters Award in Architecture from the American Academy of the Arts and Letters, Jones has been named one of the 30 Most Admired Educators in the country in the Design Intelligence Survey of Architectural Education. He currently teaches in the graduate architecture program at the University of Southern California.



"The Grand Unified Theory of Howard Bloom"

Mr. Howard Bloom

American author and Music publicist
Howardbloom.net, www.howardbloom.institute

trailer for BRIC-TV's 66-minute film, *The Grand Unified Theory of Howard Bloom*, <https://youtu.be/rGkOkChazUQ>

Best Picture, Science Design Film Festival. Best Documentary Feature, Not Film Festival, Italy. Now available on Apple TV, Amazon, Google Play, Microsoft, Vimeo, Vudu, and Fandango.

Author of: *The Lucifer Principle: A Scientific Expedition Into the Forces of History* ("mesmerizing"-The Washington Post), *Global Brain: The Evolution of Mass Mind From The Big Bang to the 21st Century* ("reassuring and sobering"-The New Yorker), *The Genius of the Beast: A Radical Re-Vision of Capitalism* ("A tremendously enjoyable book." James Fallows, National Correspondent, The Atlantic), *The God Problem: How A Godless Cosmos Creates* ("Bloom's argument will rock your world." Barbara Ehrenreich), *How I Accidentally Started the Sixties* ("Wow! Whew! Wild! Wonderful!" Timothy Leary), *The Mohammed Code* ("A terrifying book...the best book I've read on Islam." David Swindle, PJ Media), and *Einstein, Michael Jackson & Me: a Search for Soul in the Power Pits of Rock & Roll* ("Amazing. The writing is revelatory." Freddy DeMann, manager of Michael Jackson and Madonna), Best Book of 2020, New York Weekly Times.

A Quartz Magazine Pro

Former Visiting Scholar, Graduate Psychology Department, New York University, Former Core Faculty Member, The Graduate Institute; Current Kepler Space Institute Senior Scholar.

Founder: International Paleopsychology Project. Founder, Space Development Steering Committee. Member Of Board Of Governors, National Space Society. Founding Board Member: Epic of Evolution Society. Founding Board Member, The Darwin Project.



"Legacy of the Space Shuttle & more"

Dr. Lawrence H Kuznetz

Consultant to private industry

Licensed Professional Engineer and Private Pilot

Dr. Lawrence H Kuznetz is a 40-year veteran of the space program with advanced degrees from Columbia University and the University of California, Berkeley. His projects for NASA ranged from the construction of the Space Shuttles to water and life on Mars to intelligent spacesuits that talk. His publication list includes one of the first papers to show that water could stay liquid on the surface of Mars; a spacesuit user's manual for kids; an environmental thriller about the first human mission to Mars and an autobiographical journey of life with the space shuttle. Through his MarsSuit Project, he has developed new paradigms of math and science education for middle schools, high schools and universities and developed and commercially sold extreme sportswear based on spacesuit technology. Dr. Kuznetz holds 8 US patents, is a consultant to private industry and was nominated to receive NASA's Distinguished Service Medal. He has appeared on the "Tonight Show", Good Morning America and CNN, among others, and lectures in a variety of public enrichment programs. He is a licensed Professional Engineer and Private Pilot.

Main points of the presentation/discussion:

1. Space shuttle Legacy is reusability
2. It was embraced by SpaceX but ignored by NASA in its wasteful space launch system
3. The \$1 billion Artemis space suit cost overrun was a train wreck coming that was decades in the making
4. It's also a consequence of a wasteful spending culture
5. Humanity is an ostrich with its head in the sand. Elon musk's Mars aspiration is a 21st century imperative to make humanity a multi planet species before disease, war, cosmic events or climate change makes it too late