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ACKNOWLEDGEMENT OF COUNTRY

IHS 2022 would like to acknowledge the Gadigal people of the Eora Nation upon whose ancestral lands where the University of Technology Sydney City campus now stands.

IHS 2022 would also like to pay respect to the Elders both past and present, acknowledging them as the traditional custodians of knowledge for this land.

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DAY 1

NOV 7 | DAY 1 SCHEDULE

OPENING | IHS 2022 OPENING CEREMONY SESSION | 9:00AM

WELCOME & INTRODUCTION | MC PAUL HAWKINS
WELCOME TO COUNTRY | DEEN SANDERS / DELOITTE AUSTRALIA
AUDE VIGNELLES /AUSTRALIAN SPACE AGENCY
MAROUN EL KOURY / NSW INVESTMENT PARTNERSHIPS
SHUICHI TOKUDA / CONSUL-GENERAL OF JAPAN
IHS FOUNDERS

BREAK SESSION | 10:00 – 10:15AM

SESSION 1 | SPACE BIOLOGY & HEALTHCARE TECH | 10:15AM

10:15 – 10:35 PROFESSOR GORDON WALLACE/ DR PETER CHOONG | UOW/ ST VINCENT

10:35 – 10:55 SHUJI YAMAZAKI | SPACEBD LIFE SCIENCE

10:55 – 11:15 DR. SHAFAGH WATERS | UNIVERSITY OF NEW SOUTH WALES

MORNING TEA SESSION | 11:15 – 11:30AM

SESSION 2 |AUSTRALIA SPACE BIOLOGY & HEALTHCARE| 11:30PM

11:30 – 11:50 PROF. VIRGINIA KILBORN | SWINBURNE UNIVERSITY OF TECHNOLOGY

11:50 – 12:10 DR. REBECCA ALLEN | SWINBURNE UNIVERSITY OF TECHNOLOGY

12:10 – 12:30 PROFESSOR VOLKER HESSEL | UNIVERSITY OF ADELAIDE

LUNCH SESSION / UNIVERSAL CAFÉ/ 12:30 – 1:30PM

SESSION 3 | THE EMERGING SPACE ECONOMY | 1:30PM

GRAVITY CHALLENGE | DELOITTE

1:30 – 1:50 LIESDA MARSDON | DELOITTE ACCESS ECONOMICS

1:50 – 2:10 YUDAI YAMAMOTO | MITSUI BUSSAN AEROSPACE / JAPAN

2:10 – 2:30 KOSEI YAMASHITA | DIGITAL BLAST / JAPAN

2:30 – 2:50 MATT RYALL | MAWSON ROVERS / AUSTRALIA

BREAK SESSION/ MOVE TO B2 FOYER 3:00 – 3:30PM

PANEL 1 | WOMEN IN SPACE | 3:30PM – 4:30PM

CLOSING / NETWORKING

IN-PERSON EVENT

INTERNATIONAL HUMANS IN SPACE SUMMIT 2022

All Sessions

MC of IHS 2022

Paul Hawkins

Role | **Chief Combobulator**

Institution | **Crazy Might Work**

Paul is the Chief Combobulator Crazy Might Work, an award-winning, for-purpose innovation agency, launched in Antarctica. The firm works with leaders to create the conditions for high-performance and the capacity to innovate with impact. Their clients number amongst the most innovative and progressive organisations in the world, operating in spaces ranging from intensive care to space itself. Paul has worked in over 20 countries and consults to governments, states and multinationals on breakthrough thinking. He has an HDE, an MBA and an in-progress doctorate on breakthrough innovation. He has trained in innovation and neuroscience through Stanford University and the Neuro-Leadership Institute and is a facilitator of the 4-D program used by NASA.

All Sessions

MC of IHS 2022

Melanie Farmer

Role | **Concierge of Co-Creation**

Institution | **Crazy Might Work**

With a Bachelor of Education and a Masters in Marketing Innovation, Melanie has built innovative businesses in Australia, Singapore, the UAE and the UK. She works with leaders to create high-performing teams using breakthrough methods and has achieved award-winning enterprise-wide cultural and efficiency transformations over 25+ years across multiple industries. Drawing upon her experience in research, service design and innovation, she is Australia's leading expert in the use of biomimicry for business. Melanie doesn't mind a bit of drama and landed several stage roles in London with her acting diploma. She co-facilitates the 4-D program with Paul.

WELCOME TO IHS 2022

On behalf of the Organising Committee for the International Humans in Space Summit 2022, we would like to welcome you to our five-day mission to explore strange new worlds, seek out new life and new civilisations, and boldly go where no-one has gone before.

This week we are calling together sentient beings from all around planet Earth to reflect on the sixty-year history of human spaceflight and where this great adventure will take us next, from the edge of space through low Earth orbit, and to the Moon, to Mars, and beyond.

Jurassic Park famously told us that “life will find a way”, and in order for humans to survive and thrive in space, the most extreme of all environments, both fragile life forms and the technology needed to support them must be able to function optimally, from the simplest biochemistry through to an holistic view of good health and wellbeing.

Just as it takes a village to raise a child, it takes a huge team of willing and dedicated people across many disciplines to launch a single successful space mission. Although we can’t all achieve our cherished childhood dream of becoming an astronaut, we can make a tangible contribution through the work that we do on the ground to support space activities and to inspire a diverse and inclusive ‘next generation’ to aspire to space-based careers.

Our five-day mission presents a unique opportunity to share your passion for space with like-minded individuals and to learn from inspirational people all around the globe. There is a place for everyone in our crew, from the most experienced to the ‘newbies’.

We are proud to be able to present an accessible conference, and to be fundraising to support the wonderful work of UNICEF. We are glad that you will be accompanying us on our mission to “the second star to the right, and straight on ‘till morning”.

Opening Session | 9:00AM – 10:00AM / UTS DAB

Title: Welcome to Country

Prof. Deen Sanders

Role | **Lead Partner for Deloitte: Integrity and Partner**

Institution | **Deloitte Space**

Professor Deen Sanders OAM leads the Deloitte Integrity practice which sits within Deloitte Access Economics.

Deloitte Integrity focuses on matters of governance, leadership, trust, policy and strategy, helping businesses and governments tackle the complex commercial, environmental and social issues of our time. Our practice brings multi-disciplinary expertise and a systems thinking lens to respond to challenges and unlock new opportunity.

As a founder of Deloitte's Indigenous Leadership team, lead for Deloitte's Truth and Reconciliation Action Plan, and Worimi man and Giparr (cultural leader) in his community, Deen has a particular dedication to cultural leadership and the role that Indigenous Knowledge systems have in shaping the future of economics, law and policy.

Deen is also a leader in the Deloitte Space practice advising the sector on matters of protocols, laws and regulation.

Opening Session | 9:00AM – 10:00AM / UTS DAB

Title: Introducing the Australian Space Agency

Aude Vignelles

Role | **Chief Technology Officer**

Institution | **Australian Space Agency**

Aude Vignelles is the Chief Technology Officer of the Australian Space Agency. As part of the senior executive team, Aude leads and is responsible for writing the civil space strategy technical roadmaps, scoping and managing the Agency's space programs and delivering on domestic and international activities. She provides an in-depth understanding of the national and international space industry, program management expertise and a breadth of space science and systems engineering skills. Prior to this role, Aude was the Executive Manager, Satellite & Fixed Wireless Operations at nbn.

Opening Session | 9:00AM – 10:00AM / UTS DAB

Title: Welcome Message from the New South Wales Government

Maroun El Khoury

Role | **Executive Director**

Institution | **NSW Investment Partnerships**

Maroun is the Executive Director for Investment Partnerships at Investment NSW. Prior to joining Investment NSW, Maroun worked in the medical technology and financial services industry where he held Senior Executive roles leading teams focused on commercial excellence including the management of key strategic partnerships in public and private health across ANZ. Prior to MedTech, Maroun spent 15 years in Banking and Finance, again leading business development, account management and operations teams in Institutional, Government and Corporate Banking segments.

Opening Session | 9:00AM – 10:00AM / UTS DAB

Title: Welcome Message from the Consul-General of Japan in Sydney

Shuichi Tokuda

Role | **Consul-General**

Institution | **Consulate-General of Japan in Sydney**

Mr Tokuda is a career diplomat who joined the Ministry of Foreign Affairs (MOFA) of Japan in 1990. He assumed his current role, as the Consul-General of Japan in Sydney, in September 2022.

Prior to arriving in Australia, Mr Tokuda was the Deputy Assistant Minister and Deputy Director-General of the European Affairs Bureau at MOFA Headquarters in Tokyo. His previous overseas postings include the Embassy of Japan in the United Kingdom as First Secretary in the Political Section from 2003-2005, and the two postings at the Embassy of Japan in Russia as Counsellor, Economic and General Affairs, from 2005-2008, and again as Minister, Head of the Political Section from 2018-2020. He has also held various position within MOFA in the International Cooperation Bureau and Foreign Policy Bureau and also in the Ministry of Finance's Budget Bureau and International Bureau.

Mr Tokuda speaks Russian and English. He graduated with a Bachelor of Laws from the University of Tokyo in 1990.

Opening Session | 9:00AM – 10:00AM / UTS DAB

Title: Welcome Message from IHS Committee

Dr. Rowena Christiansen

Role | **Lecturer/ Co-Founder of IHS**

Institution | **University of Melbourne**

Rowena has a diverse background, with qualifications and experience in medicine, law, business, the humanities, and education, including aerospace medicine and space studies. She is a Fellow of the Aerospace Medical Association and of Ormond College at the University of Melbourne. Her practice focuses on pre-hospital emergency care and medicine in extreme and austere environments. Rowena developed and coordinated a new subject on "Human health in the space environment" for the Melbourne Medical School, and lectures on 'humans in space' for Swinburne University of Technology. She is a member of the Australian Space Agency Space Medicine and Life Sciences Technical Advisory Group. A passionate aerospace medicine advocate and educator, she founded the ad astra vita project (space health and extreme medicine). Rowena is the Research Director, Health Law for the Jus Ad Astra human rights in space project, a UNOOSA Space4Women mentor, and an ISU alumna and mentor. She is a recent finalist in the Australian Space Awards.

Opening Session | 9:00AM – 10:00AM / UTS DAB

Title: Welcome Message from IHS Committee

Dr. Joshua Chou

Role | **Senior Lecturer/ Co-Founder of IHS**

Institution | **University of Technology Sydney**

Dr. Chou is one of Australia's leading exponents of space biology and health. Dr Joshua Chou is passionate about finding new ways to deal with debilitating diseases by applying engineering principles to unanswered biological questions. A senior lecturer and Group Leader in the School of Biomedical Engineering in the Faculty of Engineering & IT (FEIT) at UTS, Joshua's innovative research focuses on developing different biological tools to understand cellular and disease mechanotransduction. He is also a committee member on the Australian Space Agency Space Medicine and Life Science group to advice on the development of this exciting area of biology in Australia. Dr. Chou is the co-founder of the International Humans in Space Summit and is proud of its heritage and yearly growth in bringing together the international community to advance human healthcare.

Session 2 / Space Biology & Healthcare Technologies | 10:15AM – 10:35AM / UTS DAB

Title: Deployable Technologies for Medicine in Space

Prof. Gordon Wallace

Role |
Executive Research Director ARC Centre of Excellence for Electromaterials Science
Director of the Intelligent Polymer Research Institute
Director of Australian National Fabrication Facility (Materials Node)

Institution | **University of Wollongong**

Distinguished Professor Gordon Wallace, an esteemed innovator and educator is a scientist at the forefront of health technologies, where medical devices complement the body's own systems to treat disease and repair injuries. An example of this is the 'Biopen', used by surgeons to directly print healing cells into a patient's body during procedures, like knee surgery. With research interests in organic conductors, nanomaterials and electrochemical probe methods of analysis in intelligent polymer systems, his extensive scientific contributions has broken new ground in every aspect of electromaterials research; academic performance and outcomes, training the next generation of researchers, and facilities development. These contributions to the enhancement of Australian materials research has led to a number of high accolades for Gordon including being awarded an ARC Laureate Fellowship (2011) and the Eureka prize for leadership in Innovation and Science (2016), being named NSW Scientist of the Year (2017), and appointed an Officer in the General Division of the Order of Australia (2017).

Session 2 / Space Biology & Healthcare Technologies | 10:35AM – 10:55AM / UTS DAB

Title: Deployable Technologies for Medicine in Space

Prof. Peter Choong

Role | **Orthopedic Surgeon**

Institution | **St Vincent's Private Hospitals**

Professor Peter Choong is a Melbourne-based orthopaedic surgeon specialising in limb-sparing surgery, where tumours are excised in their entirety to achieve the best possible outcomes.

Prof Choong is experienced in removing tumours to preserve the function of the limb through sophisticated, biologic and prosthetic reconstructions. He has a special interest in chest wall, trunk and pelvic tumour surgery, and major joint reconstruction, including hip and knee replacement orthopaedic surgery.

Peter undertook advanced orthopaedic training at the Musculoskeletal Tumour Centre, University Hospital in Lund, Sweden and also at the Department of Orthopaedics, at the Mayo Clinic in Rochester, USA.

He has a strong background in research and teaching through the University of Melbourne Department of Surgery at St Vincent's, and is recognised internationally.

Session 2 / Space Biology & Healthcare Technologies | 10:35AM – 10:55AM / UTS DAB

Title: SpaceBD Life Science

Shuji Yamazaki
山崎秀司

Role | **Business Development Manager**

Institution | **SpaceBD (Japan)**

Joined AGC Corporation in 2012. In charge of glass material development at the Central Research Laboratory. Proposed a new business in the life science field in 2016. After experiencing a wide range of operations such as research and development, manufacturing, and sales, he became a business development leader and engaged in project management.

Space BD conducts business development under the theme of space x life science.

About SpaceBD

Space BD Inc. provides opportunities to perform space experiments on the ISS using various facilities in- and outside the ISS by the partnership with JAXA. One of our services is an ultra-precise structural analysis using high-quality protein crystal growth in space. This service has been used by many university and pharmaceutical companies, and can be conducted at an affordable price just by sending samples and performing simple procedures. In addition, we have enhanced ground-based support such as high-purity purification of proteins and searching for crystallization conditions, so we can solve various problems in drug discovery research. We will explore a wide range of possibilities in the context of space and life science, so if you have even the slightest interest, please feel free to contact us.

Dr. Shafagh Waters

Role | **Senior Lecturer**

Institution | **University of New South Wales**

Dr Shafagh Waters (BSc, MSc (Disc.), PhD) is a Scientia senior lecturer at UNSW and an honorary senior scientist at Sydney Children's Hospital. A productive PhD (2012; ANU) and postdoctoral fellowships (2013-2016; UNSW) helped her secure international training fellowships in gene therapy and organoid medicine, establishing her independent lab in 2016. Dr Waters lead an NHMRC funded research program on adult-stem-cell biology for cystic fibrosis (CF) that is supported by 32 grants; 21 as CIA including international and national industry partnerships. Dr Waters has developed an Australian national biobank of stem-cell-derived airway and gut organoids, and has built a platform for high-throughput therapy-testing on patients organoids. She combines her unique strengths in organoid disease modelling, multi-omic molecular profiling and computational research with clinical data to improve individualised outcomes for patients with CF.

Session 2 / Space Biology & Healthcare Technologies | 10:55AM – 11:15AM / UTS DAB

Prof.
Virginia Kilborn

Role | **Professor / Swinburne Chief Scientist**

Institution | **Swinburne University of Technology**

Professor Virginia Kilborn is Swinburne's innaugural Chief Scientist, working to further education, research, policy and equity at Swinburne and beyond.

Virginia is also a radio astronomer with the Centre for Astrophysics and Supercomputing at Swinburne University, where her research interests include tracing galaxy evolution by studying the neutral hydrogen gas in galaxies. She is surveying the sky with the next generation radio telescopes, such as the Australian SKA Pathfinder (ASKAP) and the SKA in the future. Virginia undertook her PhD studies at the University of Melbourne, and following a post-doc at Jodrell Bank observatory in the UK, she returned to Melbourne to take up an ARC-CSIRO linkage fellowship at Swinburne in 2003. Virginia was deputy director of the Centre for Astrophysics and Supercomputing from 2011-2013, and acting director for CAS in 2013. Virginia was the Chair of the Department of Physics and Astronomy from 2015-2018. From 2019-2021 Virginia was the Dean of the School of Science.

Session 2 / Space Biology & Healthcare Technologies | 10:55AM – 11:15AM / UTS DAB

Title: Student-Powered Research

Dr. Rebecca Allen

Role | **Swinburne Astronomy Online Co-Ordinator**

Institution | **Swinburne University of Technology**

Dr Rebecca Allen completed her PhD in astrophysics at Swinburne University of Technology where her research focused on understanding the evolution and growth of galaxies over time, going all the way back to when the Universe was barely a billion years old. Now, the project lead for microgravity experimentation at Swinburne's Space Technology and Industry Institute, she applies her scientific expertise to help support Australia's growing space industry. To this end, she is working with the SmartSat CRC as the capability demonstrator lead for I-in-the-Sky, a program designed to explore how space can be used to build climate change resilient communities. When she's not studying space or sending things there, she's sharing her enthusiasm for space by communicating the wonders of the Universe to others and creating inspiring learning experiences.

Session 2 / Space Biology & Healthcare Technologies | 10:55AM – 11:15AM / UTS DAB

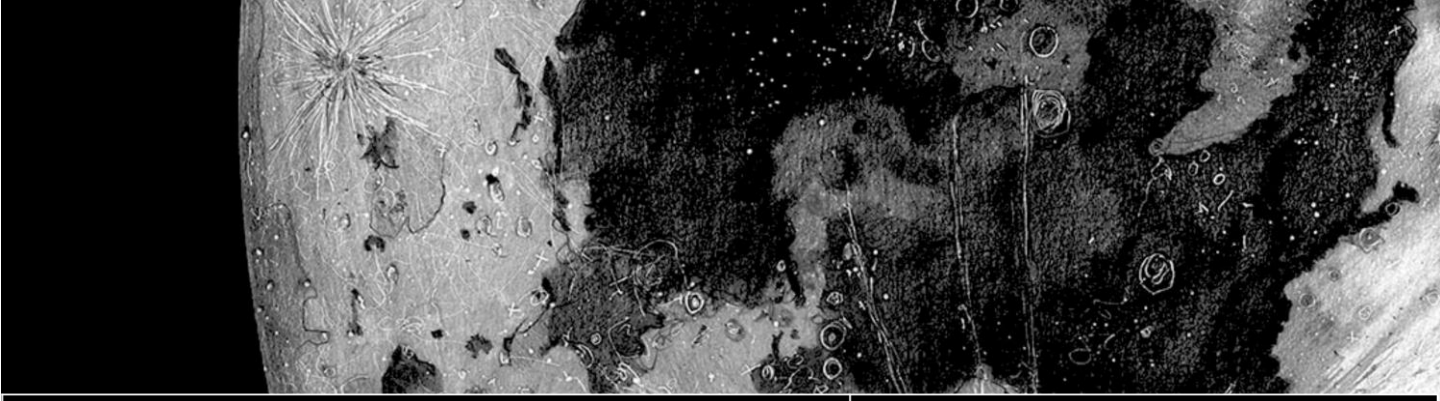
Title: Cosmic-ray stability study of pharmaceutical formulation protection concepts of medicines inside and outside ISS

Prof.
Volker Hessel

Role | **Professor / ECMS Deputy Dean – Research**

Institution | **University of Adelaide**

Prof. Dr. Volker Hessel studied chemistry at Mainz University (PhD in organic chemistry, 1993). In 1994 he entered the Institut für Mikrotechnik Mainz GmbH. In 2002, Prof. Hessel was appointed Vice Director R&D at IMM and in 2007 as Director R&D. In 2005 and 2011, Prof. Hessel was appointed as part-time and full professor at Eindhoven University of Technology, the Netherlands, respectively. In 2018, he was appointed at the University of Adelaide, Australia, as Deputy Dean (Research) at ECMS Faculty and Prof. Pharmaceutical Engineering. He was honorary professor at TU Darmstadt, Germany 2009-2018, and is guest professor at Kunming University of Science and Technology, China (2011-). Prof. Hessel is (co-)author of > 460 peer-reviewed (h index 57). He received the AIChE Award "Excellence in Process Development Research" in 2007, the ERC Advanced Grant "Novel Process Windows" in 2010, the ERC Proof of Concept Grant in 2017, the IUPAC ThalesNano Prize in Flow Chemistry in 2016, and the FET OPEN Grant in 2016. From 2014-2016, Prof. Hessel was authority in the 35-man teamed Enquete Commission "Future of the Chemical Industry" in Germany's State Parliament in Nordrhine-Westfalia.



Session 3 / The Emerging Space Economy | 13:30PM – 15:00PM / UTS DAB

Role | **Manager**

Institution | **Deloitte Access Economics**

Liesda is a Manager in Deloitte Access Economics' Economic Analysis and Policy team, specialising in strategic economic policy. Her experience includes delivering strategic economic analysis and public policy advice across a variety of areas including space, climate change, emerging sectors, transport and infrastructure.

Liesda has a passion for space and has been a key contributor to a number of projects analysing Australia's space ecosystem.

Liesda Marsdon

Session 3 / The Emerging Space Economy | 13:30PM – 15:00PM / UTS DAB

Role | **Manager**

Institution | **Mitsui & Co.**

Yudai Yamamoto is Project Manager, Space Business Dept. of Mitsui & Co., Ltd who is one of the largest general trading and investment companies in Japan. He is responsible for new business development, strategic alliance, investment, and key account management in commercial space station business and space communication infrastructure business

About Mitsui Bussan Aerospace

We are pleased to support our customers to lead to the successful launch. We are providing the CubeSat deployment service from KIBO, the Japanese experiment module on ISS, as an authorized service provider selected by JAXA. We also provide Rocket Rideshare Service the premier global launch services, as an exclusive sales agency of Spaceflight. We will support our customers to find the most appropriate satellite launch opportunities, according to the customer's mission and technical support to be required before launch.

Yudai Yamamoto

Session 3 / The Emerging Space Economy | 13:30PM – 15:00PM / UTS DAB

Title: How robots will help humans explore space

Role | **CEO & Co-Founder**

Institution | **Mawson Rovers**

About Mawson Rovers

Mawson Rovers designs and builds robotic vehicles to support sustainable human exploration of space.

NASA and SpaceX are planning to return humans to the Moon's surface from 2025, as part of the Artemis program. This time, we are going back to stay, building a permanent base near the Moon's south pole.

Our vision is to support this next phase of human exploration, by developing robots that help with construction, maintenance and inspection of lunar facilities and infrastructure.

Matt Ryall

Title: "Make Space Valuable" Our Vision of LEO Utilization

Kosei Yamashita

Role | **Chief Creative Officer**

Institution | **DigitalBlast**

Experienced Product Designer with Automotive & Aerospace industry. Skilled in Product Design, Computer-Aided Design (CAD), Creative Problem Solving, Graphic Design, Design Management, and Product planner. Recently try to explore space craft design & engineering. Strong arts and design professional graduated from Tama Art University.

About DigitalBlast

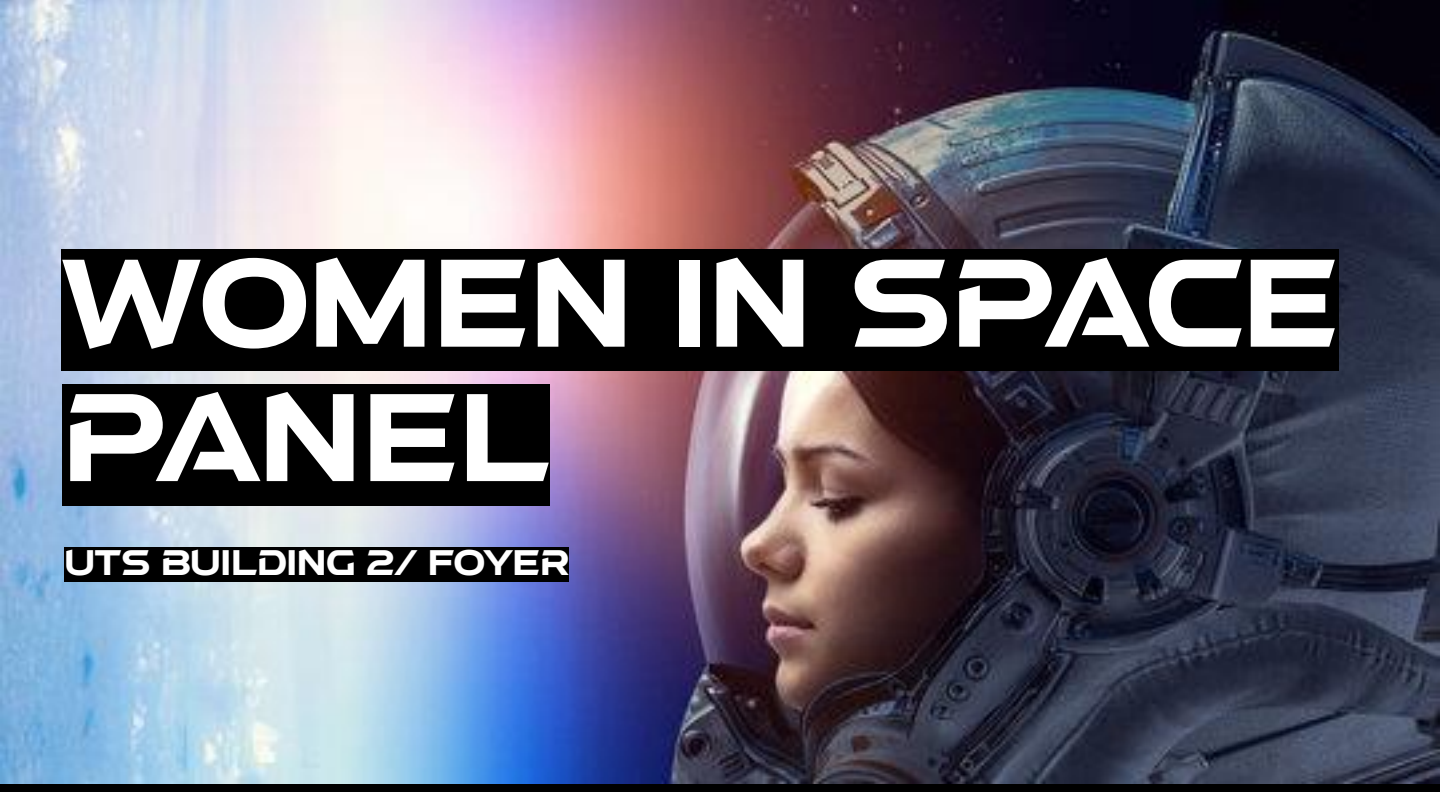
DigitalBlast's vision is to become the "World's No.1 Space Business Platformer" and aims to constantly challenge itself and the current status quo to lift the space industry to the next level. DigitalBlast has three divisions: Space Business Consulting Division, Business Consulting Division and Incubation Division.

In the Space Business Consulting Division, we support our clients to develop the best practice of space business by teaming up with experts who have market leading knowledge, experience and connection in the space industry.

As for Business Consulting Division, we provide consistent support from the discovery of issues to the implementation of solutions, based on our outstanding creative ability to create innovative solutions and implementing them based on our solid background.

Furthermore, we aim to bring about social change in the space industry by developing cutting-edge technologies through our activities in the Incubation Division. By utilizing the knowledge and experience gained through consulting, we create solutions that integrate scientific knowledge on Earth and space technologies.

GRAVITY CHALLENGE



WOMEN IN SPACE PANEL

UTS BUILDING 2/ FOYER

Prof. Virginia Kilborn
Swinburne University of Technology
MODERATOR

Liesda Marsden
Deloitte Access Economics

Julie Autuly
Cicada Innovations

Jelena Fabri
Australia Space Agency

Katie Mouser
Australia Space Agency

Keira Chrystal
Macquarie University

Dr. Catherine Grace
South Australian Space Industry Centre

DAY 2

NOV 8 | DAY 2 SCHEDULE

PANEL 2 | HUMANS IN SPACE | 9:00 – 10:00AM

BREAK 10:00 – 10:10AM

SESSION 4 | HUMAN LEADERSHIP AND SPACE HEALTH | 10:10AM

10:10 – 10:40 CHARLIE PELLERIN | FORMER DIRECTOR OF NASA ASTROPHYSICS

10:40 – 11:00 PROF. KIM PRISK | UNIVERSITY OF CALIFORNIA SAN DIEGO

11:00 – 11:20 PROF. BRUCE THOMPSON | UNIVERSITY OF MELBOURNE

MORNING TEA SESSION 11:20 – 11:30AM

SESSION 5 | NASA HUMANS IN SPACE PROGRAM | 11:30AM

11:30 – 12:00 DR. SCOTT SMITH | NASA NUTRITIONAL BIOCHEMISTRY LABORATORY

12:00 – 12:30 CODY KELLY | NASA SEARCH & RESCUE

LUNCH 12:30 – 1:30PM

SESSION 6 | HUMAN SPACEFLIGHT TECHNOLOGIES | 1:30PM

1:30 – 1:50 DUONG NGUYEN | BLUU CELLULAR FOOD

1:50 – 2:10 PROFESSOR JONATHAN CLARKE | AUSTRALIA NATIONAL UNIVERSITY

2:10 – 2:30 CLARE FLETCHER | UNSW AUSTRALIAN CENTER FOR ASTROBIOLOGY

BREAK SESSION 2:30-2:40PM

PANEL 3 | GLOBAL SPACE WORKFORCE | 2:40PM

COLLABORATION | SPACE NETWORKING SESSION | 3:45PM

IN-PERSON EVENT

INTERNATIONAL HUMANS IN SPACE SUMMIT 2022

HUMANS IN SPACE PANEL

Dr. Rowena Christiansen
University of Melbourne
MODERATOR

Dr. Dr. Lisa Mazzuca
NASA Search & Rescue

Cody Kelly
NASA Search & Rescue

Prof. Bruce Thompson
University of Melbourne

Dwayne Fernandes
Minds At Play

Session 4 / Human Leadership and Space Health | 10:10AM – 11:20AM / UTS DAB

Charlie Pellerin

Role | **President**

Institution | **4-D Systems**

Charlie Pellerin is a world-leading expert in leadership and building high-performing teams. He is the author of 'How NASA Builds Teams' and former Director of NASA's Astrophysics Division. He launched and then repaired the Hubble telescope which has given humanity an eye on the universe that previous generations would never have dreamed possible. NASA awarded him a very unusual 2nd Outstanding Leadership Medal and he was awarded the Distinguished Service Medal, which is only warranted "when the contribution is so extraordinary that other forms of recognition would be inadequate". He received "Presidential Rank" awards from Ronald Regan and from Bill Clinton for "sustained superior accomplishment."

Session 4 / Human Leadership and Space Health | 10:10AM – 11:20AM / UTS DAB

Title: Taking your Lungs to the Moon: The Challenge of Lunar Dust

Prof. Kim Prisk

Role | **Professor**

Institution | **UC San Diego**

Dr Prisk has been at UCSD since 1983 and is a Professor in the Division of Physiology of the Department of Medicine and in the Department of Radiology. His undergraduate training is in physics from the University of Canterbury, New Zealand, and he then completed a PhD in physiology at the University of Otago, New Zealand. After coming to UCSD he was principally involved with studies of the lung in the absence of gravity through direct studies in zero gravity on astronauts on board the Space Shuttle and more recently on the International Space Station. These studies remain the definitive body of work on the effects of spaceflight on the human lung. In 2003 Dr Prisk was awarded the Doctor of Science degree from the University of Otago for his studies on the lung in space. In conjunction with these studies Dr Prisk has also flown numerous experiments on NASA's microgravity research aircraft with the principal intent of understanding the effects of gravity on the deposition of particles in the lung, a topic of importance in both the environmental exposure to airborne pollutants and inhaled drug delivery. In this area he has worked with NASA an the National Space Biomedical Research Institute to examine the possible deleterious effects of lunar dust on future explorers of the moon.

Session 4 / Human Leadership and Space Health | 10:10AM – 11:20AM / UTS DAB

Title: Space Lung Research – Where to Next?

Prof.
Bruce Thompson

Role | **Professor**

Institution | **The University of Melbourne**

Professor Bruce Thompson is an active clinical scientist, with over 30 years of experience working in hospitals, universities, the community sector and business. He is a key opinion leader in respiratory medicine nationally and internationally and sits on numerous national and international scientific and clinical committees, and boards for the profession, non-government and not for profit organisations, and industry.

Prof Thompson developed an international reputation in pulmonary gas exchange physiology early in his career whilst doing his PhD in conjunction with the NASA physiology laboratory at the University of California San Diego. For the first 27 years of is career, he worked in clinical respiratory and sleep laboratories in major teaching hospitals. Throughout this time, he has developed and focused his research on the physiology of small airway function. The work is being approached on a number of fronts including physiology measurement, imaging, and mathematical modelling. Since that time Prof Thompson is now regarded as an international expert on clinical respiratory measurement.

Session 5 / NASA Humans in Space Program | 11:30AM – 12:30PM / UTS DAB

Title: Unlocking Human Health Risks with Nutritional Biochemistry

Dr. Scott Smith

Role | **Nutritionist, Manager for Nutritional Biochemistry**

Human Health and Performance Directorate

Institution | **NASA Johnson Space Center**

Scott M. Smith leads the Nutritional Biochemistry Laboratory at NASA Johnson Space Center. This group is charged with keeping crews healthy with respect to nutrition, including using nutrition to optimize astronaut health and safety. This work includes ground-based and spaceflight research to understand how nutrition can mitigate the risks of spaceflight.

Smith has ongoing research projects on the International Space Station. His past projects have been flown on the space station, space shuttle, and the Russian space station Mir. Smith has also led several ground-based research projects to better understand astronaut health in space, including studies of vitamin D in crews in Antarctica, studies of crews living on the bottom of the ocean, and studies of test subjects spending weeks to months in bed.

While Smith's research centers on the role of nutrition in astronaut health, specific efforts have evaluated how diet influences bone loss in astronauts and the role vitamins play in regulating changes to some astronauts' eyes in space. His team identified that these ocular changes were genetically predisposed.

Session 5 / NASA Humans in Space Program | 11:30AM – 12:30PM / UTS DAB

Cody Kelly

Role | **National Affairs Mission Manager**

Institution | **NASA Search and Rescue Mission Office**

Cody Kelly currently serves as the National Affairs Mission Manager within NASA's Search and Rescue Mission Office at the Goddard Spaceflight Center. His role includes the coordination and leadership of NASA's work in research and development of search and rescue technologies for use by those in distress anywhere in the world. He is the current lead for all Human Spaceflight SAR activities and supports ongoing missions with dedicated search and rescue data for locating crew capsules and astronauts following landing. For future exploration missions, Cody is leading the development of Lunar Search and Rescue (LunaSAR) requirements and systems for human exploration of the lunar south pole and sustained lunar surface presence. Cody is NASA's representative to the US Government's National Search and Rescue Committee, helping shape post-disaster response policy and coordination of SAR capabilities to save lives.

Cody was honored by Popular Mechanics Magazine as one of 2017's Breakthrough Award winners for his work in the civilian and military satellite-aided search and rescue community, as well as NASA's prestigious Early Career Achievement Medal for enabling joint NASA and military rescue operations. Cody was awarded NASA's Silver Snoopy Award in 2020 for his work on astronaut rescue equipment and testing.

Session 6 / Human Spaceflight Technologies | 1:30PM – 2:30PM / UTS DAB

Title: Fresh Seafood in Space: Made Possible by Bluu

Dr. Duong Nguyen

Role | **Director of Research and Process Innovation**

Institution | **Bluu Seafood**

Blending food science, biology, and engineering to achieve large scale cultivated meats and seafood. The intersection where technology will catch up to crazy ideas.

The food technology company Bluu Seafood (formerly Bluu Biosciences) is the first company in Europe to specialize in the commercial production of cultivated fish. As a pioneer at the intersection of biotechnology and food technology, Bluu Seafood aims to produce healthy, sustainable, and delicious cell-cultured fish products. The aim is to produce fish products in a sustainable and cost-efficient manner, thus making a significant contribution to securing the future supply of animal protein to mankind. The food technology company, based in Berlin and with scientific facilities in Lübeck, was founded in 2020 by Dr Sebastian Rakers and Simon Fabich with an expert team of marine biologists, cell biologists, tissue engineers and food engineers. In April 2021, entrepreneur, and molecular biologist Dr Christian Dammann joined the management team as Chief Operating Officer. Regarding research & development, Bluu Seafood cooperates closely with Fraunhofer Institute for Marine Biotechnology and Cell Technology (EMB; now Fraunhofer IMTE) in Lübeck and has a state-of-the-art R&D environment. More information at www.bluu.bio

Session 6 / Human Spaceflight Technologies | 1:30PM – 2:30PM / UTS DAB

Title: MARS ARKAROOLA Research Station – An Australiana Facility for Field-Based Biomedical Research

Dr. Jonathan Clarke

Role | **President**

Institution | **Mars Society Australia**

Dr Jonathan Clarke is expedition coordinator and Mars Society Australia president. A geologist by training with 30 years experience in industry, universities and government, he has worked all over Australia, in the surrounding oceans, as well as overseas, including the US, Chile, and the Philippines. Jonathan has an interest in martian geology, geomorphology, resources and their terrestrial analogues, as well as astrobiology. He is also interested in martian exploration strategies and Mars mission architecture. The Arkaroola Mars Robot Challenge Jonathan's seventh expedition on behalf to MSA, third as coordinator. Previous expeditions have included four rotations to the Mars Desert Research Station in Utah, Arkaroola, central Australia, and the Pilbara. On this expedition, in addition to coordinator, Jonathan will be providing geological input into the field science, engineering, and education programs. Jonathan is married to Anna and has two adult daughters.

Session 6 / Human Spaceflight Technologies | 1:30PM – 2:30PM / UTS DAB

Title: Human Impacts on Mars' Potential Astrobiological Heritage

Clare Fletcher

Role | **Postgraduate Research Student**

Institution | **UNSW School of Biological, Earth and Environmental Sciences**

Clare Fletcher is a PhD Candidate at UNSW's Australian Centre for Astrobiology. They completed their MPhil in early 2022 with the ACA focussing on creating a roadmap towards the conservation of the Pilbara stromatolite fossils which are the oldest convincing evidence of life on Earth. Clare's PhD is on Exogeoconservation of Mars. Some focuses within the PhD are space policy and law, planetary evolution, and origin of life environments. Clare is also passionate about science communication, interdisciplinary work in STEAM, and inspiring the next generation of scientists.

GLOBAL SPACE WORKFORCE PANEL

Ingrid Marsh
Cicada Innovations
MODERATOR

Prof. Virginia Kilborn
Swinburne University of Technology

Geraldine Baca Triveno
Deloitte Space

Christian Maskey
Australian Space Agency

Fay Ghani
Heart Research Institute

Dr. Mark Helou
Design +Industry

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INTERNATIONAL HUMANS IN SPACE SUMMIT 2022

VIRTUAL EVENT

NOV 9TH | ONLINE PRE-RECORDED PRESENTATION

SPACE BIOLOGY

WOMEN IN SPACE

US ZOOM LIVE PANEL

NOV 10TH | ONLINE PRE-RECORDED PRESENTATION

SPACE HEALTH

HUMAN SPACEFLIGHT

US ZOOM LIVE PANEL

NOV 11TH | ONLINE PRE-RECORDED PRESENTATION / LIVE

SPACE ECONOMICS

SPACE GOVERNANCE

SPACE STEM

CLOSING CEREMONY/ ZOOM LIVE