PREPARING FOR THE NEW SPACE AGE: SLEEP, CIRCADIAN RHYTHMS, AND HEALTH WHILE LIVING AND WORKING IN SPACE

WORKSHOP PROGRAMME

22-23 JULY 2026

UNIVERSITY OF SURREY

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INTRODUCTION

Interest in private space travel and tourism is expanding alongside new advances in long-duration space missions, development of lunar habitats and planned journeys to the Moon and Mars, even as the physiological and psychological challenges of living in low-gravity, non-24-hour light-dark environments and confined, isolated settings remain insufficiently understood.

The expansion in space tourism also requires the establishment of training programmes for non-professional astronauts to manage the physiological and psychological challenges inherent in space flight.

With the backdrop of Surrey's 45-year legacy in space technology research leadership, this workshop will develop a roadmap for identifying and validating new technologies and countermeasures to evaluate and treat sleep and circadian disruption in space.

The workshop will also address the opportunities offered by the new age of space tourism as well as identify the tools and training programmes required to manage its physiological and psychological challenges.

Workshop Organisers:
Professor Simon Archer
Surrey Sleep Research Centre

Professor Steven Lockley
Surrey Sleep Research Centre

Professor Derk-Jan Dijk
Surrey Sleep Research Centre

Administrative support:
Emily Brown, School of Biosciences

Toni Marsh, Faculty of Health & Medical Sciences

Louise Jones, Institute of Advanced Studies, University of Surrey

PROGRAMME

WEDNESDAY 22 JULY
INNOVATION FOR HEALTH BUILDING, ROOM 02 IFH 01

10.00 - 10.25	Arrivals, Registration and Coffee
10.25 - 10.30	**Welcome** Professor Derk-Jan Dijk
10.30 - 11.15	**Human Sleep and Circadian Rhythms to Support Living and Working in Space: Lessons from Earth and Low Orbit Studies** Professor Derk-Jan Dijk
11.15 - 12.00	**Introduction to the Surrey Space Institute and Surrey Space Legacy** Professor Paul Bate
12.00 - 12.45	Lunch
	Session 1: The Health Challenges of Spaceflight Chair: Professor Simon Archer
12.45 - 13.30	**Microgravity, the Human Body, and the UK** Mr Matthew Cook
13.30 - 14.15	**Mind Over Mars: Protecting the Brain for Deep-Space Exploration** Professor Damian Bailey
14.15 - 15.00	**The Impact of Simulated Microgravity on Human Sleep and Circadian Rhythms: Implications for Life Beyond Earth** Professor Simon Archer
15.00 - 15.30	Break

Session 2: Space Programme Perspective – Future Challenges
Chair: Professor Steven Lockley

15.30 - 16.15 **Sleep and Circadian Rhythms in Space: What We Know and What We Need to Learn for Future Lunar and Mars Missions**
Dr Erin Flynn-Evans

16.15 - 17.00 **Aerospace Medicine: Near Term and Future Needs and Fulfilment Pathways**
Dr John Marshall

From 18.00 Conference Dinner, Oak Suite 1 & 2

After Dinner Address: Space Medicine: Terrestrial Applications for Human Health, Performance and Longevity
Professor Smith Johnston

THURSDAY 23 JULY

08.30 - 09.00 Arrivals

Session 3: Space Tourism and Training for the Future of Space Travel
Chair: Dr Brigitte Stangl

09.00 - 09.35 **Profiling the Space Tourist – Who Are They and What Do They Want from Space?**
Dr Nicole Cocolas

09.35 - 10.10 **Preparing for Space: a Paradigm Shift for the New Space Age**
Professor Simon Evetts

10.10 - 10.45 **The Human Side of the New Space Age: Mental Readiness, Resilience, and Building the Next Generation for Space**
Dr Mindy Howard

10.45 - 11.05 Break

11.05 - 11.40	**Space Experience - A Journey to a New Frontier** Dr Annette Toivonen
11.40 - 12.15	**Virgin Galactic Spaceflight Expedition - Community Preparation Journey** Ms Clare Pelly and Mr James Willoughby
12.15 - 13.00	**Interactive Discussion**
13.00 - 13.45	Lunch
	Session 4: Sleep and Circadian Rhythms and Countermeasures in Space and Analog Environments Chair: Professor Derk-Jan Dijk
13.45 - 14.25	**Alleviating Circadian Rhythm Disruption in Space Habitats Using Lighting Countermeasures** Professor Steven Lockley
14.25 - 15.05	**Personalised Mathematical Models of Light, Sleep and Circadian Rhythms: A Digital Twinning Approach for Health and Performance on Earth and Beyond** Professor Anne Skeldon
15.05 - 15.45	**Understudied Stressors of Sleep, Clocks and Performance in Space** Professor Daniel Aeschbach
15.45 - 16.00	Break
	Session 5: Future Goals and Roadmap Co-Chairs: Professor Simon Archer and Professor Steven Lockley
16.00 - 17.00	**Interactive Discussion**
17.00 - 19.00	Drinks Reception

SPEAKERS AND SESSION CHAIRS

Professor Daniel Aeschbach
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