



National Aeronautics and  
Space Administration

# 2025 NASA SCIENCE

Science Mission Directorate Quantum Day  
July 9, 2025





# NASA Science Mission Directorate Quantum Day

Wednesday, July 9

HQ Room 5H41A (MIC 5) – 9:30 AM – 12:30 PM

HQ Room 3H42 (MIC 3) – 12:30 PM – 4:00 PM

9:30 “Quantum Tech in SMD” – SMD TechFed members

10:30 “Quantum Inspired Telescope Imaging” – Dr. Michael Nayak, DARPA

1:00 “Quantum Technology in Space” - Prof. R. Malaney, U. South Wales, Australia

2:30 “Quantum Information Processing for SMD” - Dr. E Rieffel and Dr. L. Braydwood, NASA Ames

[Meeting Link](#)

Meeting ID: 237 821 073 787 8  
Passcode: jZ97Rq2p

[Meeting Link](#)

Meeting ID: 267 745 185 581 7  
Passcode: JU97mR3c

[Meeting Link](#)

Meeting ID: 219 423 890 654 7  
Passcode: D5W7Nb2k

[Meeting Link](#)

Meeting ID: 248 715 299 855 0  
Passcode: oo3be7tk



SMD Technology Webinar

**Quantum Information Processing for SMD applications: A Vision**

July 9, 2025, 2:30 PM (EST) - In-person (HQ, CU26) & MS Teams

Quantum Information Processing is a critical area of technology development for future NASA missions and national security. Quantum technology, including computing, has great promise but is not yet a mature technology. As groups around the world work to make more robust quantum information processors, there is an opportunity to develop quantum-ready technologies. The Quantum AI Laboratory (QuAIL) has developed a strategic plan with SMD leadership to increase understanding of quantum technology and its potential impact on future NASA science missions and to encourage cross-team collaboration NASA-wide. This talk will serve as a kickoff for this plan. We will discuss the current state of the art in quantum information processing, potential SMD applications, and potential areas of collaboration. We will provide glimpses into use cases we have explored, particularly in the areas of ML/AI and optimization, and introduce the notions of quantum-ready and quantum-inspired approaches to solving computational challenges. We intend for the talk to be highly interactive, and to lead to further discussions with SMD domain experts about quantum technologies and how quantum information processing can be embedded in existing and future projects.

Presented by Dr. Eleanor G. Rieffel and Dr. Lucas Braydwood (Né Brady) of the NASA Quantum Artificial Intelligence Laboratory (QuAIL).



**Quantum Technology in Space**

Professor Robert Malaney, University of South Wales, Sydney, Australia

SMD Technology Webinar, Wednesday, July 9, 1 PM (Eastern), MIC3 (3H42) and via Teams

Global quantum communications via satellites is now a reality, and many researchers are now contemplating construction of the next-generation internet, a network of quantum computers interconnected via Earth-Space links. Beyond communications, quantum technology embedded on satellites also offers new windows into many current astrophysical research topics, such as exo-planets, dark matter-energy, and new physics beyond the standard models of physics and cosmology. In this talk I will touch on all these exciting new opportunities.

Robert Malaney is a Professor with the University of New South Wales, Sydney, Australia. He has previously held positions at the California Institute of Technology (USA), the University of California (USA), the University of Toronto (Canada), and the CSIRO (Australia). His research interests include Quantum Communications, Quantum Sensing, Wireless Communications, Optical Communications, Satellite Communications, Quantum Physics, Astrophysics.

## SMD Technology Federation

Carolyn Mercer, SMD Chief Technologist  
Florence Tan, SMD Deputy Chief Technologist

### Astrophysics

Mario Perez  
Dominic Bedford

### Exploration Science Strategy Integration

Zach Pirtle

### Biological and Physical Sciences

John Howard  
Dan Walsh

### Heliophysics

Roshanak Hakimzadeh  
Steven Christe

### Earth Science

Bob Connerton  
Haris Riris

### Planetary Science

Erica Montbach  
Michael Lienhard

## Special Guests

Jason Williams – Cold Atom Lab  
Brian Muirhead – Quantum Gravity Gradiometer

## Quantum Sensing for NASA Science Missions

EPJ Quantum Technology

5/21/2025



<https://rdcu.be/em4Jl>