

Title: Alumni Stories: Sonali Mohapatra

Speakers: Sonali Mohapatra

Collection/Series: Beyond Perimeter - Alumni 25th Anniversary Event

Date: September 24, 2025 - 1:20 PM

URL: <https://pirsa.org/25090066>



Dr Sonali
Mohapatra

PERIMETER ALUMNI CIRCLE

*What connects a satellite, a
poetry workshop and a deep tech
policy brief?*



WHAT DO A CUBE SATELLITE, A GLOBAL GOVERNANCE PLATFORM, A POETRY WORKSHOP AND DEEP TECH PUBLIC POLICY HAVE IN COMMON?



SYSTEMS WE BUILD



POETRY, CODE AND THE MYSTERIES OF SPACE TIME

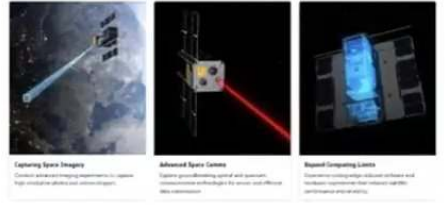
*All science can be seen
as the poetry of the
universe.*



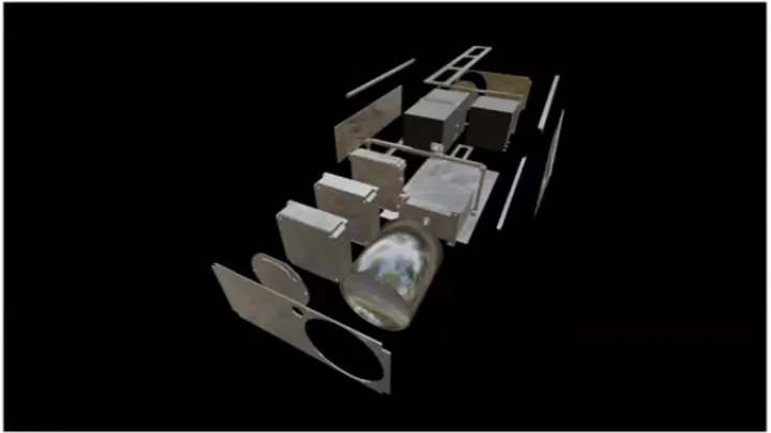
PROFESSIONAL DABBLES

OPS-SAT VOLT

The OPS-SAT Voltage Divider is an open-source PCB design for a high-precision, low-power, and low-cost divider circuit. It is designed to be used in a variety of applications, including space-based instruments and ground-based test equipment. The design is based on the use of a single operational amplifier and a single resistor network. The design is available as a PCB layout and a BOM file. The design is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike license.



QUARC/ROKS team at the UK National Quantum Technology Showcase, 15th November 2019. (L-R) Daniel Oi (QUARC PI), Doug McNeil (CPL Systems Engineer), Elliott Hastings (Bristol, OGS development), Siddarth Josh (Bristol, OGS Lead), Cassandra Mercury (CPL Mechanical Engineer), Sonali Mohapatra (Strathclyde/CPL Impact Acceleration Fellow). Sonali is holding the 6U structure for the ROKS mission. Behind is the portable optical ground station being developed as part of the QUARC programme and ROKS mission for communication with the CubeSat.



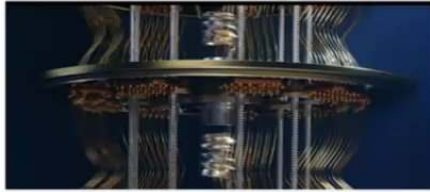
International Space Missions as science & technology demonstrators.

UNIVERSITY OF WATERLOO

INSTITUTE FOR QUANTUM COMPUTING

Quantum Encryption and Science Satellite (QEYSat)

18750th Street | Chatham Space Agency, 2020



Imagining the Future of Quantum Computing for Space

Just as we're seeing the dawn of quantum computing on Earth, we're also seeing the dawn of quantum computing in space.

October 2022



The year is 2035. Picture a vast fleet of spacecraft, equipped with hyper-sensitive quantum accelerometers, gyroscopes, and clocks, navigating the solar system with pinpoint precision. Satellites of any altitude, outfitted with revolutionary quantum sensors, waiting in orbit for design assignments. They're invisible, and their existence is a dark matter. Space becomes the frontier of quantum computing.

Quantum readiness: Healthcare



Quantum computing is set to revolutionise the way we approach healthcare. The UK can lead the charge in developing quantum-enabled medical solutions that improve patient care and reduce costs.

Dr David Lowndes
Senior Communications Lead

The NQCC has funded a number of pioneering projects in the quantum space across the healthcare, pharma and the space sector where quantum computing (QC) could offer a crucial advantage over classical computing. These include:

Drug Discovery

The NQCC has supported a number of pioneering projects in the quantum space across the healthcare, pharma and the space sector where quantum computing (QC) could offer a crucial advantage over classical computing. These include:

The NQCC is part of a consortium investigating quantum computing approaches for assessing whether quantum simulation of complex molecular systems for enzyme-targeted drug discovery, currently inaccessible using classical methods. Led by Astra, a company developing artificial intelligence and other novel techniques for drug discovery, this project will also perform healthcare analysis of antimicrobial resistance systems.

Together, the NQCC is collaborating with leading Quantum Computing and the UK's expertise in QC could help optimize operational healthcare systems such as those used in patient scheduling to reduce wait times, optimize patient scheduling to reduce wait times, optimize patient scheduling to reduce wait times, optimize patient scheduling to reduce wait times.

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SparQ

SparQ Quantum Applications Portfolio 2023-25

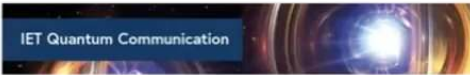
Quantum Computing Use Case Compendium



Insights Paper 2024-25

The convergence of healthcare and pharmaceuticals with quantum computing: A new frontier in medicine

PROFESSIONAL DABBLES



REVIEW Open Access

Advances in space quantum communications

Jasminder S. Sidhu, Siddharth K. Joshi, Mustafa Gundogan, Thomas Brougham, David Lowndes, Luca Mazzarella, Markus Krutzik, Sonali Mohapatra, Daniele Dequal ... See all authors

Responsive Operations for Key Services (ROKS): A Modular, Low SWaP Quantum Communications Payload

Craig D. Colquhoun, Hazel Jeffrey, Steve Greenland, Sonali Mohapatra, Colin Atkeson

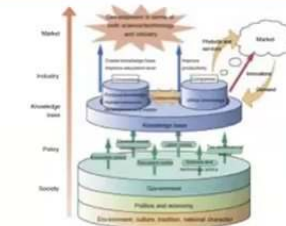
SSC21-IX-04

Payload Testing of a Weak Coherent Pulse Quantum Key Distribution Module for the Responsive Operations on Key Services (ROKS) Mission

Cassandra Murray, Sonali Mohapatra, Craig Colquhoun, Steve Greenland, Mikulas Cabocruz, Philippos Kargiamakis, Abren McFadden, Craft Prospect Ltd
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David Lowndes, Milan Szelko, John Ratty
Quantum Engineering Technology Labs, University of Bristol,
H. H. Wills Physics Laboratory & Department of Electrical and Electronic Engineering, University of Bristol,
Merchant Venturers Building, Woodland Road, Bristol, BS8 1UB

Fig. 1 Conceptual Diagram of National Innovation System



Source: Prepared by MIXT





SCIENCE, TECH, PURPOSE AND INCLUSIVE SPACES

*Who does our science
and tech serve or
harm?*



*Photography,
art,
technology
and writing
as mediums of
creative
expression, of
dabbling in
joy as well as
disseminating
complex
ideas.*



New Voices In Space.

This working group focuses on newspace approaches to improve accessibility to the space industry.



Migrant Travel Support Network
A network of individuals and NGOs working for relief of Migrant Workers in post-pandemic India.
Non-profit Organisation | 16,500 members | 11,000 employees

WHY DO WE NEED TO BEG FOR SOFTNESS?

ON THE LIMINALITY OF A TERRACE: A FEMINIST CARTOGRAPHY OF CARE UNDER THE OPEN SKY



CURRENTLY



THE FUTURE OF WORK, TECH AND THE INTERSECTION OF HEALTH AND INCLUSIVITY



I CAN AND I CAN'T
I AM (disabled) AND I AM NOT (disabled)



Disability is not a detour
from innovation; it is a
design prompt.



THANK YOU

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