



Quantum for National Security (Q4NS)

Technical Advisory Committee Plenary Meeting


2021 Q4NS Annual Plan Overview

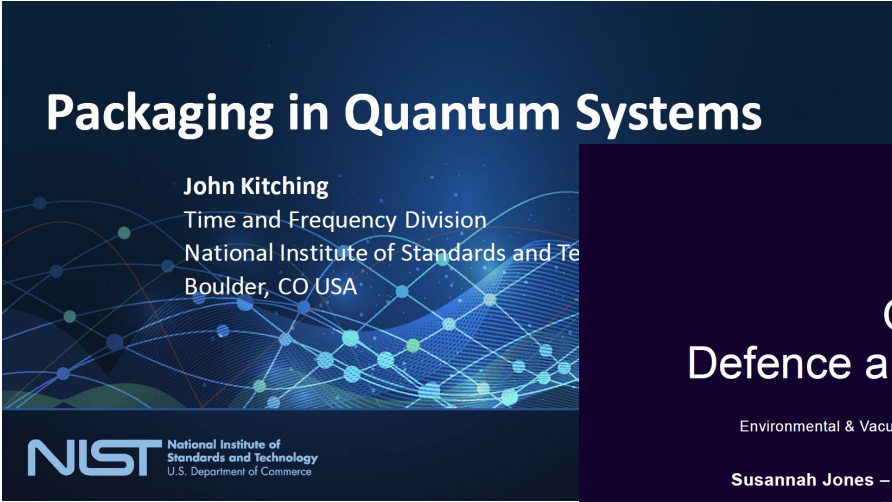
- Purpose: Facilitate exchange of information between government and industrial sectors
- 2021 Goals:
 1. Hold TAC workshops on Enabling Technologies for Low-CSWAP Quantum PNT and DoD applications of Quantum Computing
 2. Provide TAC membership with useful information on US Government activities related to quantum technologies and highlight these in TAC meetings.
 3. Expand TAC membership to ensure all interested members are able to participate
 4. Expand and solidify interactions with government leaders to make sure the diverse needs of the various parts of government agencies are captured and addressed

ENVIRONMENTAL AND VACUUM PACKAGING FOR QUANTUM PNT SENSORS NEEDS Workshop Agenda October 5-7, 2021	
Session 1: Oct 5, 1:00-4:00pm EDT Stage-setting presentations	
Keynote speaker and presentations by stakeholders on QPNT sensor requirements and state-of-the-art strategies, technologies, and manufacturing for achieving state-of-the-art packaging for environmental, vacuum, vibration and thermal management/control. Outcome per speaker: Challenges per topic area.	
1:00 – 1:15pm	Introduction to workshop Michael Larsen
1:15 – 1:45pm	Overview of technology John Kitching (NIST), Susannah Jones (DSTL – UK)
1:45 – 2:15pm	Presentation on atomic clocks Karl Nelson (Honeywell), Nan Yu (NASA JPL)
2:15 – 2:45pm	Presentation on gyroscopes Matt Cashen (Vector Atomic), Cass Sacket (UVA)
2:45 – 3:00pm	Break
3:00 – 3:30pm	Presentation on accelerometers & gravimeters Igor Teper (AOSense), John Close (ANU)
3:30 – 4:00pm	Presentation on magnetometers Mike Bulatowicz (Northrup Grumman), Justin Brown (Physical Sciences Inc)

Packaging in Quantum Systems

John Kitching
Time and Frequency Division
National Institute of Standards and Technology
Boulder, CO USA







The Science Inside

Quantum PNT Defence and Security Applications

Environmental & Vacuum Packaging for Quantum PNT Sensors Conference 2021


Susannah Jones – Quantum Sensing Project Co-PTA (with Gareth Brown)
Principal Quantum Scientist / Engineer

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Jet Propulsion Laboratory
California Institute of Technology
National Aeronautics and Space Administration

Protecting Atomic References from Environment

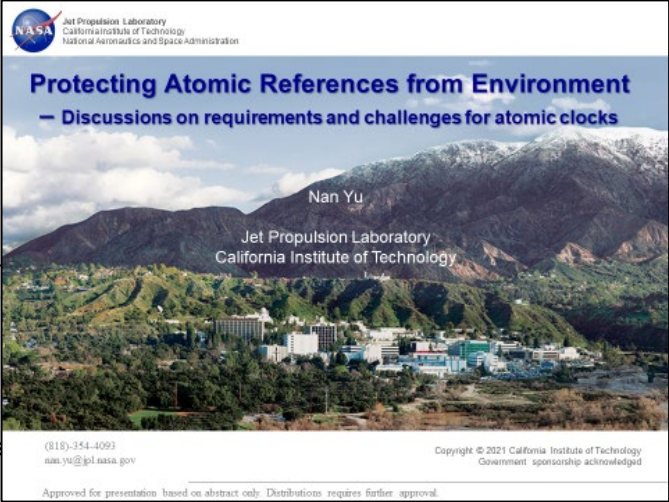
— Discussions on requirements and challenges for atomic clocks


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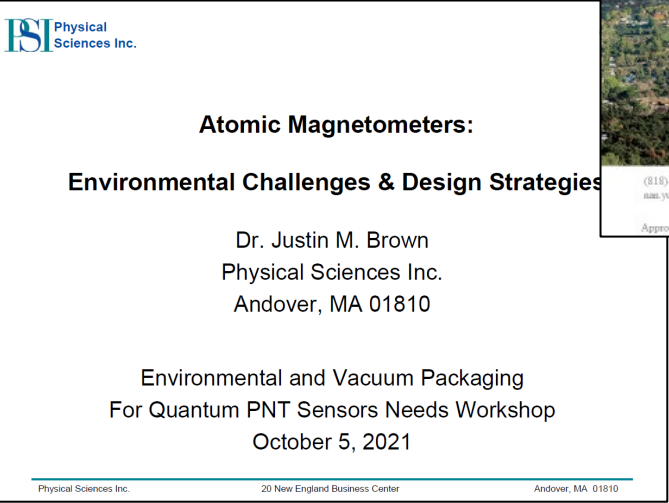


Atomic Magnetometers: Environmental Challenges & Design Strategies

Dr. Justin M. Brown
Physical Sciences Inc.
Andover, MA 01810

Environmental and Vacuum Packaging
For Quantum PNT Sensors Needs Workshop
October 5, 2021

Physical Sciences Inc. 20 New England Business Center Andover, MA 01810



Environmental and Vacuum Packaging for Accelerometers and Gravimeters

Igor Teper
Chief Technology Officer
AOSense, Inc.

