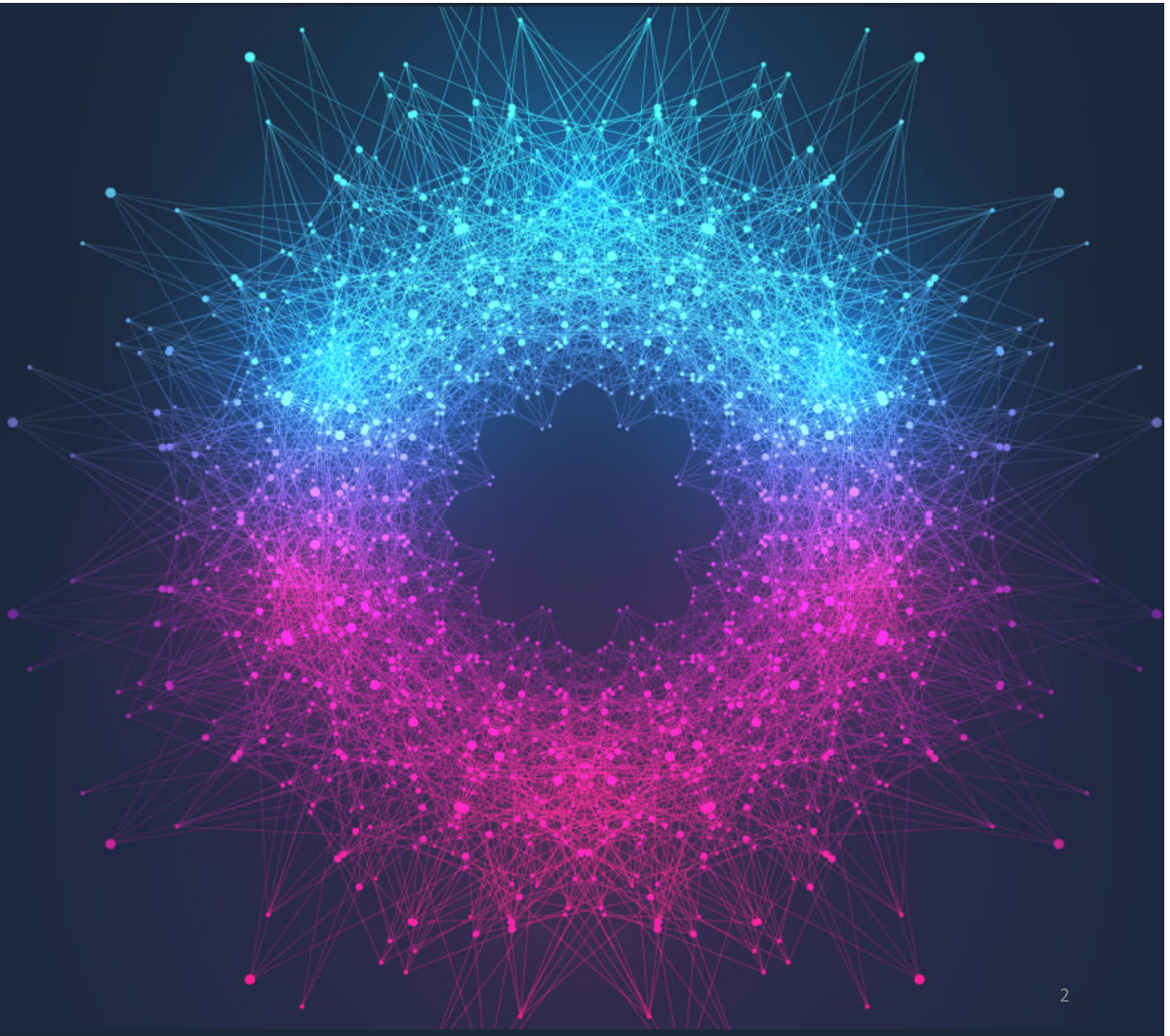
Jason Hyon
Director, QSIC
Jet Propulsion Laboratory, California Institute of Technology

QSIC

A virtual Center at JPL to harness and leverage breakthrough quantum technologies that enable new science, and a Hub to build connections with universities and industry to exploit collaborative opportunities and develop a quantum workforce.



JPL Focus in Quantum Technology

Quantum Computing

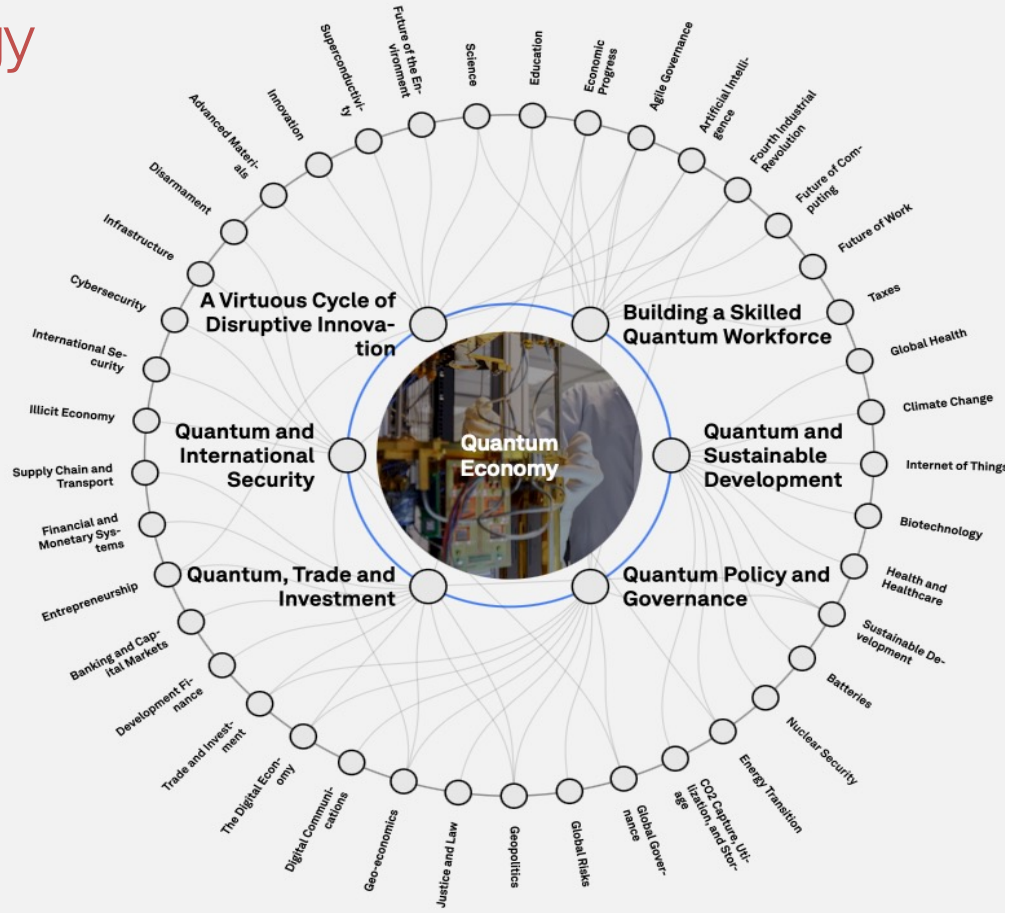
a new type of machine that can solve, in record time, problems that are very hard or unsolvable with traditional computers

Quantum Sensing

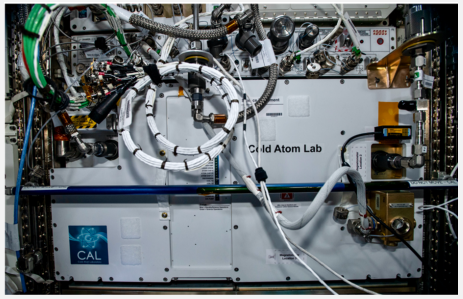
will have a strong impact on different industries by applying quantum sensitivity to the external environment to execute highly sensitive detection

Quantum Communications

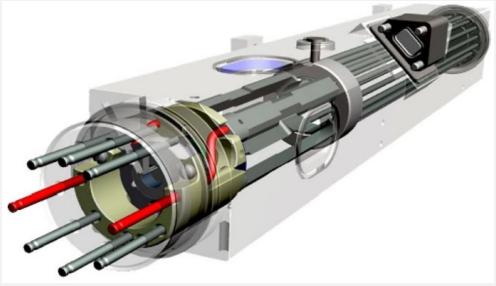
guarantee high bandwidth communications and safety by using the property that quanta cannot be duplicated



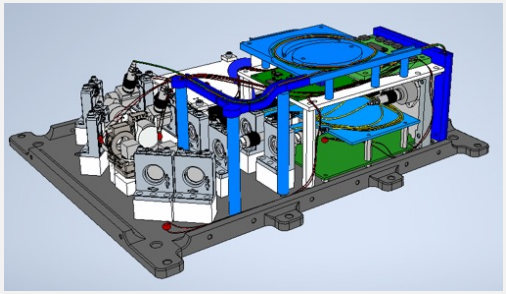
Why JPL for a quantum center?



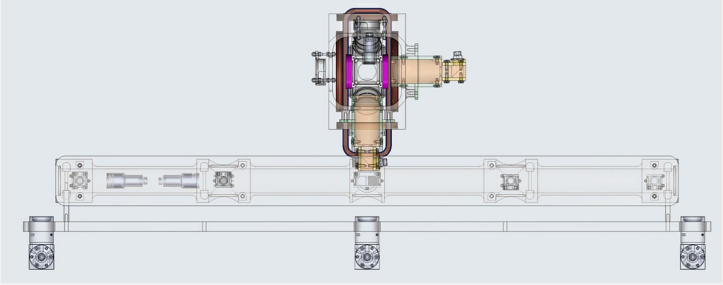
Cold Atom Lab (2018)



DSAC (2019)

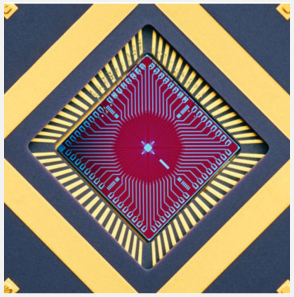


SEAQUE (2024)

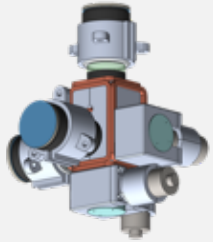


QGG

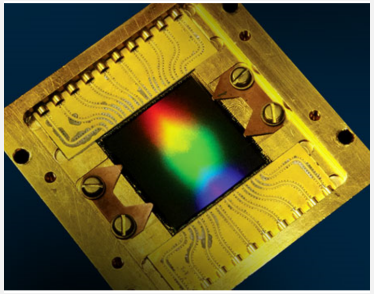
Miniature Microwave Trapped-Ion Clock



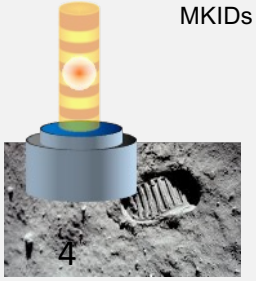
SNSPDs



Atomic Drag-free Reference Accelerometer



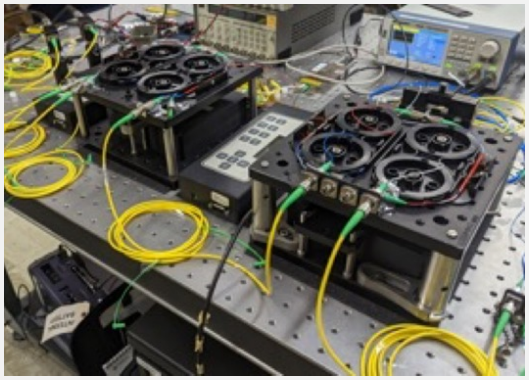
MKIDs



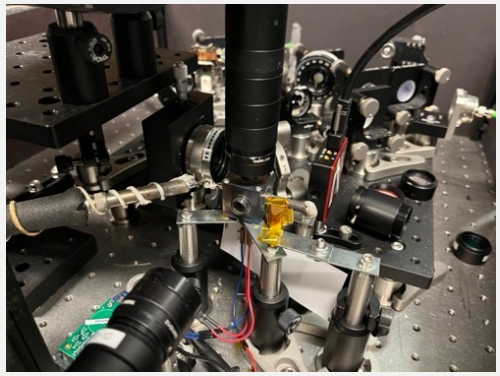
Lunar Atomic Seismometer

JPL's Quantum Facilities

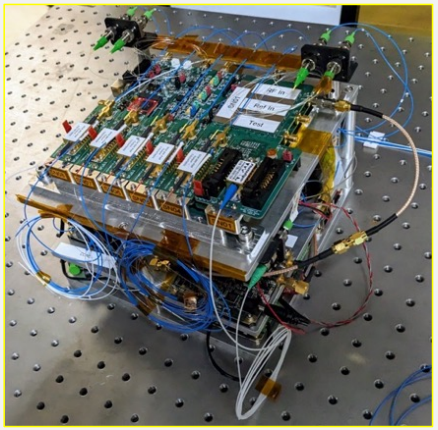
Cold Atom Testbeds



Quantum Entanglement/Quantum Optics



Atomic Clock Testbeds



Laser Optical Systems

Microdevices Laboratory

The Quantum Hub

The Quantum Hub is an informal consortium of (originally local) universities with educational and research programs in quantum technologies. The purpose of the Hub is to foster communication, collaboration, and talent sharing among the consortium members to advance the quantum economy.

The Hub involves:

- Collaborations/Partnerships
- Facility/Equipment Sharing
- Visiting Researchers
- Internships
- Curriculum Development
- Seminars, eMail List, Website
- Workshops
- “The Quantum Valley”

Goals

Create opportunity and **capture** work - $1B for next 5 years

Position the Lab to lead space borne missions – 2 missions in next 7 years

Establish workshops, training, and internship with industry and universities - yearly

Advance JPL unique technology and capability for spaceborne missions – 3 product line, 5 base technologies

How To Reach Us

- Center Director: Jason Hyon, Jason.j.hyon@jpl.nasa.gov, 818-354-0730
  - Deputy: John Callas, John.l.callas@jpl.nasa.gov, 818-354-9088
  - Deputy: Ed Chow, Edward.t.chow@jpl.nasa.gov , 818-393.3854

- Types of interactions
  - Opportunity capture
  - Capability assessment
  - Partnership
  - A joint workshop or studies
  - Curriculum development
  - Internship opportunities
  - Speaker engagements
  - Roadmaps