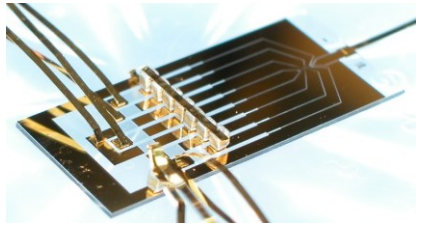
NIST has a rich history of foundational quantum research

- Many world-firsts and world-bests – clocks, single photon sources & detectors, long-distance QKD…
- Three joint institutes collaborating in quantum research



First surface ion trap
NIST 2005

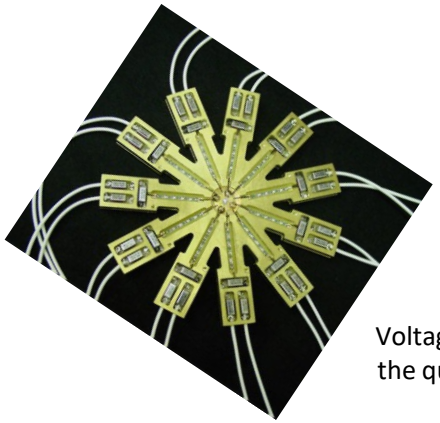
Our dedication to metrology…

- spawned a new generation of technology
  - 25 years of trapped-ion quantum research -> 100+ quantum computing team at Honeywell
- and provides the ground-truth for science-based standards

Standards is our middle name

- Physical standards
  - Quantum-based chip-scale standards
  - Josephson voltage standards
  - Quantum Hall resistance standards

NIST on a Chip

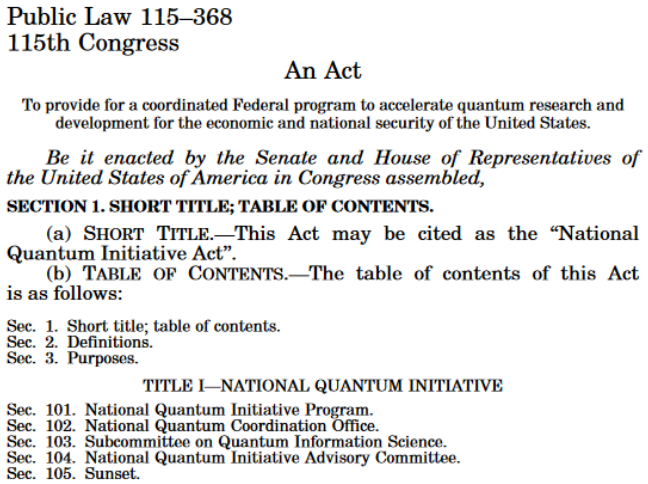


Voltage divider for
the quantum watt

- Post-quantum cryptography standards https://csrc.nist.gov/projects/post-quantum-cryptography
- Contribute to documentary standards
  - ISO, IEC, ITU-T, ETSI…

Barbara Goldstein, bgoldstein@nist.gov
Clare Allocca, clare.allocca@nist.gov

The National Quantum Initiative Act, NIST and QED-C



Public Law 115–368
115th Congress

An Act

To provide for a coordinated Federal program to accelerate quantum research and development for the economic and national security of the United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "National Quantum Initiative Act".
(b) TABLE OF CONTENTS.—The table of contents of this Act is as follows:

Sec. 1. Short title; table of contents.
Sec. 2. Definitions.
Sec. 3. Purposes.

TITLE I—NATIONAL QUANTUM INITIATIVE

Sec. 101. National Quantum Initiative Program.
Sec. 102. National Quantum Coordination Office.
Sec. 103. Subcommittee on Quantum Information Science.
Sec. 104. National Quantum Initiative Advisory Committee.
Sec. 105. Sunset.

Signed into law 12/21/2018

Calls on NIST to establish a "consortium of stakeholders" to identify needs to support development of a robust QIST industry in the United States.

NIST selected SRI International to manage the consortium.

Quantum Economic Development Consortium (QED-C)

- **Mission**: enable and grow a robust quantum-based industry and supply chain
- Over 150 participants (industry, academia, government, etc.)
- Activities focused on:
  - Workforce Development
  - Use Cases
  - Enabling Technologies
  - **Standards and Benchmarks**
    - Developing prototype benchmarks
    - Providing input to SDOs
    - Defining "standardization readiness levels"

Learn more at https://quantumconsortium.org

National Institute of Standards and Technology
U.S. Department of Commerce

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