

Advancing the quantum economy through sensors and standards

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Biography

Ms. Barbara Goldstein serves as Associate Director of the Physical Measurement Laboratory of NIST. PML, consisting of about 1300 staff and associates and two joint institutes, realizes and disseminates precision measurements to support commerce, defense and research.

Ms. Goldstein leads the “NIST on a Chip” program which is developing a suite of quantum sensors to deliver traceable, embeddable measurements directly to point-of-use. She is also a leader in international quantum standardization. She convenes/leads multiple efforts, including a working group of the IEC Standards Evaluation Group on quantum technologies (SEG 14), the international IMEKO TC25 on quantum measurement and quantum information, and a new effort she initiated to foster collaboration across metrology institutes to advance the quantum economy. She served as an Embassy Science Fellow in 2021, hosted by the U.S. Embassies in the Netherlands, Denmark and Finland, where she helped foster a “trusted partners” network for quantum collaboration.

Abstract

The strength and pace of growth of the global quantum economy will depend on the strength of its foundation, not just in terms of technology maturity but the infrastructure needed to measure, characterize and interconnect both systems and components. Are there physical

standards and measurement practices available to fact-check products under development or deployed in the field? Do we have a common language to bridge the gap between research and commerce? This talk will discuss how the measurement and standards infrastructure is being developed to accelerate the development and adoption of quantum technologies.