US Strategy for Quantum Science and Engineering

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Abstract:
Quantum science and engineering has become a strategic national priority for the United States, driven by its potential to transform computing, sensing, communications, materials discovery, and national security. This talk will examine the evolving U.S. quantum strategy and the coordinated roles of federal agencies, national laboratories, universities, industry, and international partnerships. It will discuss how the nation is balancing long-term fundamental research with near-term technology development, workforce preparation, infrastructure, standards, and pathways to commercialization. Particular attention will be given to the pillars of quantum information science—computing, networking, and sensing—and to the enabling technologies that connect them, including photonics, materials, cryogenic systems, control electronics, and advanced manufacturing. The talk will also consider persistent challenges, including scalability, benchmarking, supply-chain resilience, talent development, and translation from laboratory demonstrations to deployable systems. It will conclude with perspectives on research priorities and strategic opportunities for sustaining U.S. leadership in quantum science and engineering.