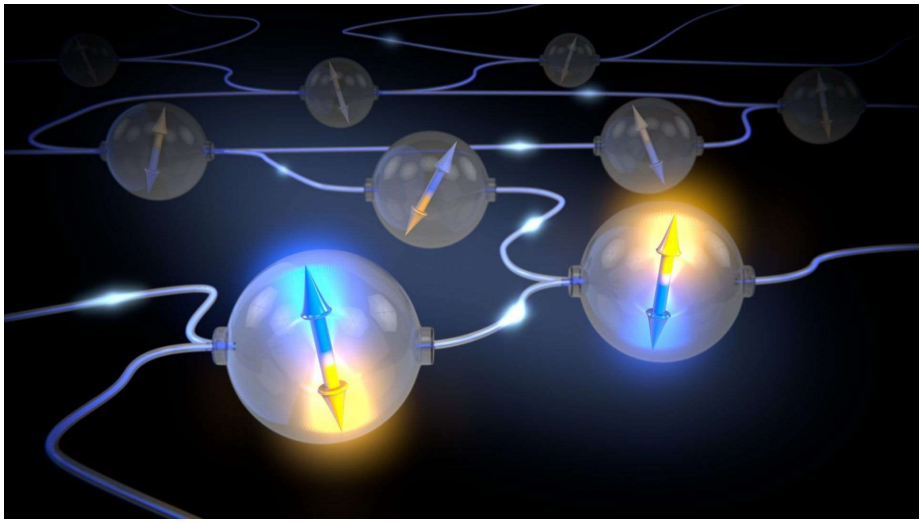
2/10/2022

Core Network

Information-Centric Networks (ICN)

ICN is a new networking paradigm that routes data based on names, rather than endpoint addresses, of data. It brings important benefits over conventional IP networking, including built-in security, in-network caching, and native support for multicast. This program develops ICN technologies (including Named-Data Network routers that are as essential to ICN as IP routers to IP networks) and ICN applications (including ICN-based secure onboarding of IoT devices and distributed caching of contents and software). We also advance global research and accelerate industry adoption by leading the NDN Consortium, an industry-academia-industry research consortium on developing ICN technologies and applications.



QUANTUM OPTICAL NETWORKING

This program develops new measurement techniques, tests and performance procedures, standards, and best practices to enable industry and government to gain confidence in this new disruptive network technology: quantum optical network technology. Harnessing quantum networking technologies will power our economic competitiveness and provide better communication security. The program is organized around two research/focus areas:

- ***Quantum Network Metrology.***
- ***Quantum Optical Network Architecture and Protocols.***

5G/6G Core Networks

This program advances the technology foundation, measurement science, and standards that will be required to enable intelligent

resilient, and automated 6G systems and applications, focusing on core networks and end-to-end (E2E) networking services. Our innovation currently covers network architecture concepts, key enabling technologies (including E2E service assurance, edge AI, AI as a Service, network automation, and automated network resilience), industry applications (including industrial control systems and autonomous vehicles), and measurement methods to address unique challenges in 5G/6G systems (e.g., performance of AI/ML-based network functions, interservice interferences). We are developing an opensource 5G/6G core network testbed that can support applications across government agencies and facilitate global research collaboration. We work with industry to explore how 5G and 6G can accelerate industry transformations.

5G is the future of all communication, as it will revolutionize the concept of remote communication.

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