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LECTURE HALL
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Beyond the Supercomputer: Scaling Networks, AI, & Quantum Computing for Breakthrough Science

SPEAKER

Shri Inder Monga

Executive Director of ESnet & Division Director at Berkeley Lab



Inder Monga is the Director of Berkeley Lab's Scientific Networking Division and Executive Director of Energy Sciences Network (ESnet), the Department of Energy's sole high-performance networking user facility and its data circulatory system. ESnet connects and provides services to more than 50 DOE research sites, including national laboratories, supercomputing facilities, and scientific instruments, as well as peers with 270+ research and commercial networks worldwide. Inder is also the Deputy Project Lead for the American Science Cloud project for the Genesis Mission, Principal Investigator for the Quantum Application Network Testbed for Novel Entanglement Technology project, and co-PI of the National Science Foundation's FABRIC testbed.

The holder of 25 patents, he received a B.S. in electrical/electronics engineering from IIT Kanpur, a master's in computer engineering from Boston University, and is completing his Ph.D. in computer science at the University of Amsterdam.

ABSTRACT

The world's most ambitious scientific experiments are producing data at unprecedented scale. The challenge is no longer simply generating or storing that data, but connecting instruments, computing, and intelligence across the scientific ecosystem to transform data into discovery in near real time. As AI reshapes scientific workflows, the infrastructure required to support them is evolving rapidly. AI systems will need access to enormous scientific datasets, specialized computing resources, and scientific instruments and increasingly, the ability to collaborate with teams of specialized AI agents. At the same time, quantum computers are beginning to move beyond isolated machines toward a future in which multiple quantum processors can communicate and work together.

We are beginning to see an emerging infrastructure for AI-native science—one in which AI can participate directly in scientific workflows, scientific instruments can interact with distributed computing and AI resources, and specialized quantum and classical systems are becoming part of a connected scientific fabric. Drawing on his work leading ESnet (www.es.net), the American Science Cloud (amsc.energy.gov), and QUANT-NET (quantnet.lbl.gov), Inder Monga will explore novel infrastructure and architectures driving the convergence of networking, AI, high-performance computing, and quantum technologies, and how this convergence could transform the way science is conducted.

All are cordially invited to attend
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