

# CHICAGO QUANTUM EXCHANGE

A leading intellectual hub for quantum technologies

The CQE advances the science and engineering of quantum information, trains the future quantum workforce, and drives the quantum economy by connecting top universities, national labs, and industry partners.

The recipient of more than \$1B in government and corporate investment and home to world-leading experts in the field, the Midwest-based CQE community is a central driver of US leadership in quantum technologies.

BRIDGING SECTORS



ADVANCING RESEARCH



TRAINING THE WORKFORCE



DRIVING THE ECONOMY



## THE CQE LEADS TWO SEPARATE CROSS-SECTOR COALITIONS SELECTED TO PARTICIPATE IN FEDERAL CHIPS AND SCIENCE ACT PROGRAMS

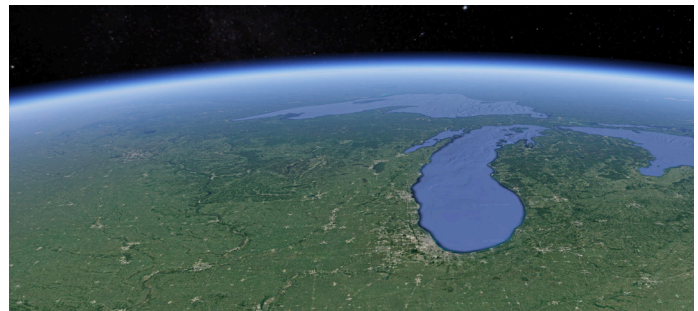
### THE BLOCH QUANTUM TECH HUB

Designated by the US Economic Development Administration



### NSF REGIONAL INNOVATION ENGINE

Development Award from the National Science Foundation



The Bloch is the nation's only quantum innovation team rallying entire sectors around critical challenges — to combat financial fraud, secure the energy grid, and accelerate the development of life-saving drugs.

The NSF Engines team is deepening partnerships and strengthening workforce and economic development plans. The aim: to grow the Midwest into one of the world's foremost quantum innovation zones.

210+

Researchers in areas of quantum information technology

124MI

Length of the Chicago Quantum Network, one of the longest in the nation

\$1B

Federal and state government funding for quantum technologies in the CQE region

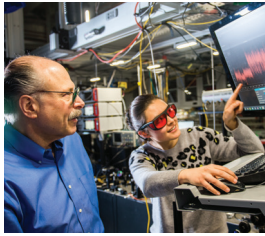
CHICAGO  
QUANTUM  
EXCHANGE



Northwestern  
University

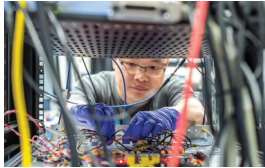


## RESEARCH HIGHLIGHTS



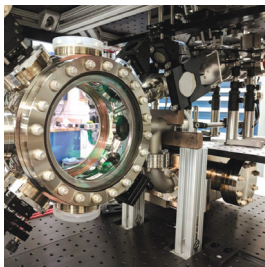
### Quantum Communications

Using the principles of quantum entanglement, CQE researchers are developing encryption that could offer a revolutionary new scheme of securing information. This quantum-based security will be a game-changer for government, finance, telecom, and other industries that depend on fast, provably secure communications.



### Quantum Computing

CQE researchers are developing and improving hardware, including lengthening the amount of time a qubit can be operational, and designing the software and algorithms that will increase the performance of quantum computers.



### Quantum Sensing

CQE researchers are developing quantum sensors, platforms that may be used for precision sensing of individual molecules, new techniques for bio-imaging, and novel tools to measure and control temperature within cells. These quantum tools could enable scientists and healthcare providers to monitor and control real-time activity and molecular dynamics.

*“Our state’s quantum investment holds the key to unlocking opportunities for job creation, industry advancement, and scientific discovery.”*

**US Senator Dick Durbin (Illinois)**

### MEMBERS

The University of Chicago	D-Wave	QuEra Computing Inc.	Technion – Israel Institute of Technology
Argonne National Laboratory	EeroQ	QNu Inc.	Weizmann Institute of Science
Fermi National Accelerator Laboratory	Great Lakes Crystal Technologies	Rigetti Computing	
University of Illinois Urbana-Champaign	HRL Laboratories	SandboxAQ	
University of Wisconsin–Madison	IBM	Seagate	
Northwestern University	Infleqtion	Sivananthan Labs	<b>Regional</b>
Purdue University	JPMorgan Chase	TOPTICA Photonics	The Ohio State University
	KPMG	Toshiba Corporation	
	Lake Shore Cryotronics	WD Advanced Materials	<b>Nonprofit</b>
	memQ	Xanadu	Le Lab Quantique
	Microsoft	Zurich Instruments	P33
	Protiviti		Quantum Economic Development Consortium (QED-C)

### PARTNERS

#### Industry

Ally Financial  
Applied Materials  
Atom Computing  
Boeing  
Cisco  
Corning  
Discover

#### Duality Startups

Artificial Brain  
Photon Queue  
QuantumAstra  
Quantum Rings  
SynthBits

#### International

CQC<sup>2</sup>T  
Indian Institute of Technology Bombay  
QuTech

## INDUSTRY

### Duality Quantum Startup Accelerator

A 12-month program focused exclusively on innovative quantum startups. Since 2021, 20 companies have participated. Alums have secured \$52M+ in private and public funding.

### Illinois Quantum & Microelectronics Park

New 128-acre park on Chicago’s South Side for quantum scale-up and related quantum and advanced microelectronics research and development to support a full ecosystem of companies, researchers, suppliers, and end users. Leadership includes CQE members.

## EDUCATION AND TRAINING

### Degree Programs

CQE member institutions teach 114 quantum courses. All offer degree or concentration programs, including a PhD in quantum science and engineering at UChicago’s Pritzker School of Molecular Engineering and a master’s in quantum computing at UW–Madison.

### CQE IBM Postdoctoral Trainees Program

Supports collaborative research and provides discretionary funds, mentoring, and freedom to work in research groups across the CQE.

### Open Quantum Initiative Fellowship

Summer fellowship offers undergraduates opportunities to learn about quantum information science and engineering. Since 2022, 48 fellows have interned in 37 quantum labs or research groups across seven institutions.

### Professional Education Programs in Quantum Engineering and Technology

Series of courses aimed at equipping early- and mid-career professionals with quantum technical skills. Since 2022, more than five dozen people from both science and business backgrounds have participated.

### Chicago Quantum Recruiting Forum

Annual event connects hundreds of students and trainees with dozens of employers.