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# Start your journey to quantum safe

Quantum computers have the potential to serve as discovery tools for challenging problems, but they also bring security considerations. While cryptographically-relevant quantum computers are still on the horizon, “harvest now, decrypt later” schemes put data at risk today. Therefore, we must plan for a quantum-safe future, today.

IBM is committed to the responsible development of quantum computing and is a leader in Quantum Safe technology. Of the four algorithms selected by the US National Institute of Standards and Technology (NIST) for standardization, three were developed by IBM and our collaborators. And in 2023, we unveiled our Quantum Safe Roadmap, charting a path for the future of post-quantum cryptography.

IBM aims to make this quantum-safe transition as seamless as possible with IBM Quantum Safe Explorer, IBM Quantum Safe Advisor, and IBM Quantum Safe Remediator. These three key technologies will help clients identify, prioritize, and replace old cryptographic schemes with new quantum-safe solutions.

Today, IBM is a trusted industry leader in quantum safe. As part of the GSMA Post-Quantum Telco Network Taskforce, IBM is helping define policy, regulation, and operator business processes for the enhanced quantum-safe protection of telecommunications, for example.

Fully migrating to quantum-safe technology might seem daunting. But it doesn't have to be, thanks to IBM Quantum Safe.

To learn more about your quantum safe journey, please contact us at [ibm.biz/IBMQuantumLearnMore](https://ibm.biz/IBMQuantumLearnMore).

Eastern time	DAY 1   TUESDAY, OCTOBER 24
9:05 am	<b>Conference Opening</b> Speaker: <b>Kees Eijkel</b> - Business Development Director, QuTech, Delft University of Technology Conference Chairperson
9:10 am	<b>Conference Keynote: Accelerating Quantum Readiness with Crypto-Agility</b> Speaker: <b>Scott Crowder</b> - Vice President, Quantum Adoption and Business Development, IBM
	<b>Forecasts, Funding and Management</b>
9:40 am	<b>Special Talk: Quantum Hardware at Intel</b> Speaker: <b>Ravi Pillarisetty</b> - Senior Research Scientist, Intel
	<b>Quantum Market Growth: Quantum Cybersecurity</b>
9:55 am - 11:40 am	<b>Session 1: Future Commercialization of PQC: Beyond NIST</b> <i>One of the biggest quantum events in the past year was NIST's selection of PQC algorithms, with the promise of draft standards in 2024. This choice has lowered the barriers to entry in the PQC market and will result in new firms rushing into the market. This session will provide insight on how the PQC market will evolve, with a special focus on which PQC markets and products will take off first. We will explore the evolution of PQC from both the perspective of NIST and from the point of view of the most innovative PQC firms, both large and small.</i>
9:55 am	<b>Talk 1.1: Anti-Virus Technology for Quantum Computers</b> Speaker: <b>Jakub Szefer</b> - Associate Professor, Electrical Engineering, Yale University
10:10 am	<b>Panel 1.1: PQC: Evolution of Applications</b> Moderator: <b>Reza Azarderakhsh</b> - CEO and Founder of PQSecure and Professor at FAU Speakers: <b>Skip Sanzeri</b> - Founder, Board Chair, and COO, QuSecure <b>Rafael Misoczki</b> - Cryptographer, Meta
10:35 am	<b>Talk 1.2: Challenges, Complexities and Preparation for PQC Migration</b> Speaker: <b>Chris Hickman</b> - Chief Security Officer, Keyfactor
10:50 am	<b>Talk 1.3: Hardware IPs for PQC and CHIPS Act</b> Speaker: <b>Reza Azarderakhsh</b> - CEO and Founder of PQSecure and Professor at FAU
11:05 am	<b>Special Talk: The Quantum Technology Industry: Market Predictions</b> Speaker: <b>Lawrence Gasman</b> - President, IQT Research
11:25 am	<b>Talk 1.4: The Current State of Quantum Security</b> Speaker: <b>Gina Scinta</b> - Deputy Chief Technology Officer, Thales Trusted Cyber Technologies
11:40 am - 12:55 pm	<b>Lunch Break in the Exhibit Hall</b>
12:55 pm - 2:30 pm	<b>Session 2: Quantum Cybersecurity Hardware: The Good, the Bad and the Users</b> <i>This session focuses on QKD and QRNGs and will be especially concerned with how these two quantum cybersecurity technologies/products can differentiate themselves and succeed in the market. One issue that we will explore is if how QKD chips will expand the quantum cybersecurity business. We will also explore the incorporation of quantum technology into HSMs, an interesting new direction for quantum cybersecurity. We anticipate that the speakers will include both the vendors of quantum cybersecurity hardware and the firms that are considering using them.</i>
12:55 pm	<b>Talk 2.1: Why Entropy is more valuable than BITCOIN</b> Speaker: <b>Anthony Lawrence</b> - Founder and Chief Executive Officer (CEO), VOR Technology and Light Rider
1:10 pm	<b>Panel 2.1: Minding The Gap: Corporate Quantum Cybersecurity Actions while we wait for NIST and FIPS</b> Moderator: <b>Michael Redding</b> - CTO, Quantropi Speakers: <b>Wolfgang Rohde</b> - Director of Research, Digital Manufacturing, Siemens Digital Industries Software <b>Carlos Abellán</b> - Co-Founder and CEO, Quside Technologies S.L.
1:35 pm	<b>Talk 2.2: Quantum Random Number Services</b> Speaker: <b>Jose Coello</b> - Director and Chief Scientific Officer, Crypta Labs Ltd.

Eastern time	DAY 1   TUESDAY, OCTOBER 24 <i>continued</i>
1:50 pm	<b>Panel 2.2: Simulation, Quantum and Monte Carlo</b> Moderator: <b>Zhanet Zaharieva</b> - Co-founder and COO, Quantum Dice Speakers: <b>Annika Möselein</b> - Technical Project Manager, Quantum Dice <b>Anton Lebedev</b> - Scientific Assistance and HPC Software Engineer, Hartree Center, Science and Technology Facilities Council (STFC) <b>Del Rajan</b> - Quantum Computing Research Scientist, HSBC Lab
2:15 pm	<b>Talk 2.3: Keep It Simple: Considerations for Enterprise Grade QKD in Real World Environments</b> Speaker: <b>Nir Bar-Lev</b> - CEO, QuantLR
2:30 pm - 2:50 pm	<b>Afternoon Break and Refreshments in the Exhibit Hall</b>
	<b>Quantum Technology Adoption</b>
2:50 pm - 5:10 pm	<b>Session 3: The Case for Quantum: End User Perspectives</b> <i>This session will examine the deployment of quantum technology in a variety of key industry sectors; the industries that are proving to be the quantum pioneers. The session will begin with an overview of quantum cyber security deployment in the enterprise and then take a look at quantum in the financial services and materials/pharma sectors. It will conclude with a discussion for in-premises quantum computers and what we might do with them. The story will be told from the perspective of both the quantum technology industry and the end-users themselves.</i>
2:50 pm	<b>Panel 3.1: The Case for Quantum Cybersecurity in the Enterprise</b> Moderator: <b>John Prisco</b> - President and Chief Executive Officer, Safe Quantum Incorporated Speakers: <b>Ramy Shelbaya</b> - Co-founder and CEO, Quantum Dice <b>Vince Berk</b> - Chief Revenue and Strategy Officer, Quantum Xchange <b>Rima Oueid</b> - Senior Commercialization Executive, United States Department of Energy <b>Simon Patkovic</b> - VP, Quantum-Safe Solutions, ID Quantique
3:15 pm	<b>Panel 3.2: Quantum Computing in Pharma and Materials Science</b> Moderator: <b>Christopher Bishop</b> - Chief Reinvention Officer, Improvising Careers Speakers: <b>Zoran Krunić</b> - Sr. Manager Data Science, AMGEN <b>Shahar Keinan</b> - CEO, Polaris Quantum Biotech <b>Saif Rayyan</b> - Quantum Computational Science Research Manager, IBM
3:40 pm	<b>Talk 3.1: A Pseudo-Asymmetric Cryptographic Quantum Protocol</b> Speaker: <b>Lubjana Beshaj</b> - Research Scientist, Army Cyber Institute, Associate Professor, West Point
3:55 pm	<b>Panel 3.3: Quantum Technology in the Military</b> Moderator: <b>Anthony Lawrence</b> - Founder and Chief Executive Officer (CEO), VOR Technology and Light Rider Speakers: <b>Edward Parker</b> - Physical Scientist, RAND Corporation <b>Étienne De Montigny</b> - Defense Scientist, Defense Research and Development Canada, Department of National Defense <b>Catarina Bastos</b> - Account Manager for Defence, Deimos Engenharia
4:20 pm	<b>Panel 3.4: Quantum Technology in the Energy Industry</b> Moderator: <b>Doug Finke</b> - Chief Content Officer, Global Quantum Intelligence Managing Editor, Quantum Computing Report Speakers: <b>Satyam Priyadarshy</b> - Technology Fellow and Chief Data Scientist, Halliburton <b>Rozhin Eskandarpour</b> - Founder and CEO, Resilient Entanglement
4:45 PM	<b>Panel 3.5: Quantum, Training and the Workforce</b> Moderator: <b>Christopher Bishop</b> - Chief Reinvention Officer, Improvising Careers Speakers: <b>Olivia Lanes</b> - Global Lead and Manager, Quantum Advocacy, IBM <b>Connor Teague</b> - Head of Quantum Computing - Talent Partner, Quantum Futures <b>Zizwe Chase</b> - Assistant Professor, Electrical and Computer Engineering, University of Illinois Chicago
5:10 PM	<b>Special Talk: How a Telecom Quantum-Safe Footprint will Shape the Future</b> Speakers: <b>Chloe Ryu</b> - Manager, Quantum Americas, SK Telecom <b>Simon Patkovic</b> - VP, Quantum-Safe Solutions, ID Quantique
5:45 PM	<b>Wrap-up Discussion and Highlights for Wednesday</b>
6:00 PM - 7:00 PM	<b>Welcome Reception</b>





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Eastern time	<b>DAY 2   WEDNESDAY, OCTOBER 25</b>	
9:05 am	<b>Recap of Yesterday - Plan for Today</b>	
	<b>Market Growth: What's Next in Quantum Technology</b>	
9:10 am - 10:30 am	<b>Session 4: Emerging Quantum Sensor Technologies: Products and Trends</b> <i>If quantum clocks and PAR sensors count, quantum sensors are the most mature of all quantum technologies. However, in the past few years, exciting new applications for quantum sensors have begun to emerge. Quantum sensors in medical imaging remain controversial, but the role of quantum sensors in location-finding services and self-driving vehicles seem assured. We also note that the structure of the quantum sensor industry is changing and becoming an area of interest for some of the largest quantum technology firms. In this session, we discuss the opportunities resulting from all this change. How much revenue potential does the quantum sensor business really have?</i>	
9:10 am	<b>Talk 4.1: Building a Quantum Platform for Sensor Applications</b> Speaker: <b>Mathieu Munsch</b> - CEO, Co-Founder, Qnami	
9:30 am	<b>Panel 4.1: R&amp;D Directions for Quantum Sensors</b> Moderator: <b>Lawrence Gasman</b> - President, IQT Research Speakers: <b>David Roy-Guay</b> - Co-Founder and CEO, SBQuantum <b>Ravi Kumar</b> - Co-Founder and Chief Technology Officer, Atomionics <b>Nardo Manaloto</b> - Managing Partner, Qubits Ventures	
10:00 am	<b>Talk 4.2: Future of Quantum - Enhanced Image Sensors</b> Speaker: <b>Hoon Kim</b> - Founder and CEO, SeeDevice Inc.	
10:15 am	<b>Talk 4.3: Quantum Sensing at IDQ</b> Speaker: <b>Dan Chebot</b> - Quantum Sensing Manager, Americas, ID Quantique	
10:30 am	<b>Women in Quantum Technology</b> Moderator: <b>Kenna Hughes-Castleberry</b> - Staff Writer, IQT News Speakers: <b>Olivia Lanes</b> - Global Lead and Manager, Quantum Advocacy, IBM <b>Maëva Ghonda</b> - Chair, Quantum AI Institute <b>Senior Fellow</b> , HQS Quantum Simulations <b>Clarice Aiello</b> - Assistant Professor, Quantum Biology Tech (QuBiT) Lab, UCLA	
11:00 am - 12:15 pm	<b>Lunch Break in the Exhibit Hall</b>	
12:15 pm - 2:25 pm	<b>Session 5: New Directions for Quantum Technology</b> <i>This session covers some of the major open issues that will have to be resolved as the quantum technology market takes off. These include relatively technical matters such as quantum cloud, hybrid quantum computing and the ubiquitous quantum supremacy issue. The session will also take a look at the question of whether AI will emerge as a major application in the quantum sphere and how the manufacturing of quantum devices can be expected to improve in the future. The panelists will include some of the leading engineers and strategic thinkers involved with these issue.</i>	
12:15 pm	<b>Session Keynote: Future Directions in Quantum Networking</b> Speaker: <b>Wojciech Kozlowski</b> - Quantum Network Engineer, QuTech	
12:35 pm	<b>Panel 5.1: Quantum Technology and AI</b> Moderator: <b>Lawrence Gasman</b> - President, IQT Research Speakers: <b>Tom Lubowe</b> - Product Manager, Quantum Computing Libraries, NVIDIA <b>Hrant Gharibyan</b> - Co-founder and CEO, BlueQubit <b>Stefan Woerner</b> - Principal Research Scientist, Manager, Quantum Computational Science, IBM Quantum, IBM Research Europe – Zurich	
1:10 pm	<b>Talk 5.1: Building the Innovation Flywheel for Quantum Technologies</b> Speaker: <b>Stefan Natu</b> - Head of Product Management, Amazon Braket	
1:30 PM	<b>Talk 5.2: Bohr Quantum: A Path to the Quantum Internet</b> Speaker: <b>Paul Dabbar</b> - CEO and Co-Founder, Bohr Quantum Technologies	



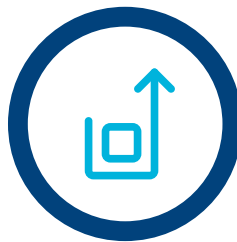


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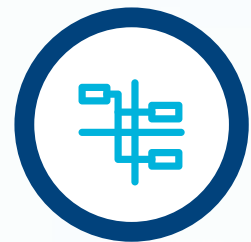
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Eastern time	DAY 2   WEDNESDAY, OCTOBER 25 <i>continued</i>
1:45 PM	<b>Spotlight: IBM's Practical Success with Smaller QCs: The Nature Paper</b> Speaker: <b>Sarah Sheldon</b> - Senior Manager, Quantum Theory and Capabilities, PRSM, IBM
2:00 PM	<b>Panel 5.2: Perspectives on Manufacturing Hardware</b> Moderator: <b>Celia Merzbacher</b> - Executive Director, Quantum Economic Development Consortium (QED-C) Speakers: <b>John Levy</b> - Co-founder and CEO, Seeqc <b>Javad Shabani</b> - Associate Professor of Physics / Director, Center for Quantum Information Physics (CQIP), NYU
2:25 PM - 2:45 PM	<b>Afternoon Break and Refreshments in the Exhibit Hall</b>
	<b>Quantum Technology Adoption</b>
2:45 PM - 4:10 PM	<b>Session 6: New Directions for Regulation and Policy</b> <i>The policy environment for quantum is diverse and evolving. In this Session we will bring together topics such as government funding, export controls and national security matters. Speakers will include government executives and policy experts as well as representatives of private firms with special regulatory responsibilities. This session will also take a look at quantum regulation outside of the US.</i>
2:45 PM	<b>Panel 6.1: US Quantum Policy: National Programs and Funding</b> Moderator: <b>Lawrence Gasman</b> - President, IQT Research Speakers: <b>Paul Dabbar</b> - CEO and Co-Founder, Bohr Quantum Technologies <b>Jonah Force Hill</b> - Head of U.S. Federal Business Development & Government Affairs, Xanadu
3:10 PM	<b>Talk 6.1: Transitioning the U.S. Government to Quantum Safe Cryptography: What We've Learned So Far</b> Speaker: <b>Nick Polk</b> - Sr. Advisor to the Federal Chief Information Security Officer, White House Office of Management & Budget
3:25 PM	<b>Talk 6.2: Quantum Information Science at the Air Force Research Laboratory</b> Speaker: <b>Michael Hayduk</b> - Deputy Director, Information Directorate, Air Force Research Laboratory
3:40 PM	<b>Talk 6.3: White House NSM-10 and How it will Affect the Private Sector in 2024</b> Speaker: <b>Konstantinos Karagiannis</b> - Director, Quantum Computing Services, Protiviti
3:55 PM	<b>Talk 6.4: Reauthorizing the National Quantum Initiative</b> Speaker: <b>Paul Stimers</b> - Partner, Public Policy & Regulation Group, Holland & Knight
	<b>Forecasts, Funding and Management</b>
4:10 PM	<b>Special Panel: Quantum Technology Executive Roundtable</b> This special panel comprises CTOs and CEOs from some of the leading quantum technology firms. They will discuss the "big picture" in quantum technology including such matters as product roadmaps, key business challenges, the role of government funding, recruitment, etc. Moderator: <b>Lawrence Gasman</b> - President, IQT Research Speakers: <b>Bob Sutor</b> - Chief Quantum Advocate, Infleqtion <b>Noel Goddard</b> - CEO, Qunnect <b>Gina Scinta</b> - Deputy Chief Technology Officer, Thales Trusted Cyber Technologies, <b>Mark Solomon</b> - Vice President, IonQ
4:45 PM - 5:35 PM	<b>Special Session: Quantum Investment Outlook: VCs and the Future</b> This session will look at the role of venture capitalists in the quantum technology sector. What sectors of quantum technology will they investing in and what do they see as reasonable time frames for profitability? This special session will include some of the most active VCs in the quantum sector.
4:45 PM	<b>Discussion: The Future of Venture Capital in the Quantum Sector</b> Speakers: <b>Ton van 't Noordende</b> - Managing Director, QDNL Participations <b>William Zeng</b> - Partner, Quantonation
5:10 PM	<b>Panel 1: How VCs make Quantum Sector Investments</b> Moderator: <b>Ton van 't Noordende</b> - Managing Director, QDNL Participations Speakers: <b>Francesco Ricciuti</b> - VC Associate, Runa Capital <b>Mark Danchak</b> - Managing Partner, General Innovation Capital <b>Damien Petty</b> - Partner, Morpheus Ventures
5:35 PM	<b>Wrap-up Discussion and Highlights for Thursday</b>



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In Delft, a vibrant ecosystem of companies, orbiting around quantum technology institute QuTech – a collaboration between TU Delft and TNO – has taken root.

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**QuantWare** is the leading supplier of quantum processors.

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Eastern time	<b>DAY 3   THURSDAY, OCTOBER 26</b>	
9:00 am	<b>Recap of Yesterday - Plan for Today</b>	
9:05 AM	<b>Diamond Networking Keynote: Practical Distribution of Useful Entanglement</b> Speaker: <b>Mehdi Namazi</b> - Co-Founder and Chief Science Officer, Qunnect Inc.	
	<b>Quantum Technology Adoption</b>	
9:30 AM - 11:55 AM	<b>Session 7: Quantum Networking Markets: Towards the Quantum Internet</b> This session will emphasize the business reasons for building networks. The panels will answer the question — why build quantum Internets in the first place; what applications will it support? The session will also deal with the technology of quantum networking — notably repeaters. The speakers for this session will include leading thinkers in the quantum networking space, as well as executives from the leading firms developing quantum networking products.	<b>TOSHIBA</b>
9:30 AM	<b>Session Keynote: Quantum Networking Markets: Towards the Quantum Internet</b> Speaker: <b>Andrew Shields</b> - Head of Quantum Technology, Toshiba Europe	
9:50 AM	<b>Talk 7.1: Quantum Networking at Stony Brook and Brookhaven</b> Speaker: <b>Eden Figueroa-Barragan</b> - Associate Professor at Stony Brook University and Joint Appointment at Brookhaven National Laboratory	
10:05 AM	<b>Panel 7.1: Quantum Repeater: Short-To Medium-Term Prospects</b> Moderator: <b>Robert Broberg</b> - Visiting Scholar, University of Pennsylvania Speakers: <b>David Levonian</b> - Sr. Research Scientist, Quantum Networking, AWS <b>Michael Wood</b> - Chief Marketing Officer (CMO), Aliro Quantum <b>Stephanie Simmons</b> - Founder and Chief Quantum Officer, Photonic	
10:30 AM	<b>Panel 7.2: Quantum Network Vendors and Integrators</b> Moderator: <b>Denis Mandich</b> - CTO, Qrypt Speakers: <b>Poolad Imany</b> - Founder and CEO, Icarus Quantum Inc. <b>Willemijn Uilhoorn</b> - Application Scientist, Qblox	
10:55 AM	<b>Talk 7.2: Quantum Networks: An Enabling Technology</b> Speaker: <b>Yoann Jestin</b> - CEO and co-founder, Ki3 Photonics	
11:10 AM	<b>Talk 7.3: Quantum Networking with Diamond Color Centers</b> Speaker: <b>Hyeongrak (Chuck) Choi</b> - Postdoctoral Associate, Massachusetts Institute of Technology	
11:25 AM	<b>Talk 7.4: The Quantum Internet Toolbox</b> Speaker: <b>Gerhard Rempe</b> - Director, Max Planck Institute of Quantum Optics	
11:40 AM	<b>Talk 7.5: Multi-Technology Approaches to Enterprise Quantum Security</b> Speaker: <b>Denis Mandich</b> - CTO, Qrypt	
11:55 AM - 1:10 PM	<b>Lunch Break in the Exhibit Hall</b>	
1:10 PM - 2:50 PM	<b>Session 8: Quantum Networking</b> More on the extraordinary opportunities that are beginning to present themselves in quantum networking with talks on the latest standards, trials and equipment from the most knowledgeable experts in the field.	
1:10 PM	<b>Talk 8.1: Advances in Quantum Networking</b> Recent progress Quantum Computing space has driven interest and resources into both Post-Quantum Cryptography as well as Quantum Networking technologies, in both commercial and government markets. We will discuss late-breaking developments on the Quantum Networking side, including innovative new architectures, such as the DARPA QuANET program, new methods for entanglement sharing, quantum link authentication and novel approaches to secret key sharing. Speaker: <b>Wil Oxford</b> - Founder and CEO, Anametric	
1:30 PM	<b>Talk 8.2: A Survey of Quantum Networking Testbeds</b> Speaker: <b>Robert Broberg</b> - Visiting Scholar, University of Pennsylvania	
1:50 PM	<b>Talk 8.3: Quantum Networking and High-Performance Computing</b> Speaker: <b>Deborah Berebichez</b> - Founder & CEO, Solve For You	

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QUANTUM KEY DISTRIBUTION

# Quantum Cryptography

Securing the future of a digital society

By adopting Quantum Key Distribution, organisations can **protect their communication infrastructure** from today's vast array of cyber-threats, as well as those of tomorrow. Already, hackers are using techniques such as harvest and decrypt, where data is scraped and stored today with the aim of decrypting it once they have the capability to do so through advances with supercomputers, the realisation of a **quantum computer**, or the discovery of new techniques for cryptanalysis. With QKD, any data which requires **long-term protection** is not only secure in today's IT landscape, but also **future-proofed** to remain protected in the impending **quantum age**.

Robust levels of security are required in many sectors. In **healthcare**, the technology has been applied to ensure

the secure transmission of genome data in Japan. Within the **public sector** QKD is used to provide government with secure communications, in the **finance industry** to **protect banking network infrastructure** and in **aerospace** and **pharmaceuticals** to protect high-value long-life **Intellectual Property**. Equally, in the age of IoT and smart cities, the necessity for a robust, **tamper-proof** and **ultra-sensitive infrastructure** is essential to ensure day-to-day life operates without disruption both now and in the future.

Toshiba is the world leader in high-speed quantum cryptographic systems. Based on decades of scientific research, we have taken on the challenges of this unexplored field and have pioneered the path to practical use.



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Eastern time	<b>DAY 3   THURSDAY, OCTOBER 26 <i>continued</i></b>
2:05 PM	<b>Panel 8.1: The Current State of Quantum Networking</b> Moderator: <b>Corey McClelland</b> - Vice President, Qubitekk, Inc. Speakers: <b>Jim Ingraham</b> - Vice President, Strategic Research Division, EPB <b>Michael Hayduk</b> - Deputy Director, Information Directorate, Air Force Research Laboratory <b>Eden Figueroa-Barragan</b> - Associate Professor at Stony Brook University and Joint Appointment at Brookhaven National Laboratory
2:30 PM	<b>Talk 8.4: Quantum Networking from the Ciena Perspective</b> Speaker: <b>Patrick Scully</b> - Director, Product Line Management, Converged Packet Optical Division, Ciena
2:50 PM - 3:10 PM	<b>Afternoon Break and Refreshments in the Exhibit Hall</b>
	<b>Market Growth</b>
3:10 PM	<b>Special Talk 1: Getting Ready for the Era of Enterprise-Grade Quantum Computers</b> Speaker: <b>Rima Alameddine</b> - Chief Revenue Officer, IonQ
3:30 PM	<b>Special Talk 2: Quantum Technology at Fidelity</b> Speaker: <b>Elton Zhu</b> - Director, Quantum Research, Fidelity Center for Applied Technology
3:45 PM - 4:30 PM	<b>Session 9: Software Opportunities for Quantum Computing</b> This session focuses on the most rapidly evolving aspects of software in the quantumsphere. One such area will be quantum programming, which has a special role to play as an enabler for quantum computing in R&D, the enterprise and the data center. Another important software-related enabler is error-free quantum computing. These topics will be considered in Session 7 along with quantum optimization and quantum simulation. The session will bring together the leading technologists in these areas for a thorough discussion of how products and strategies will be developed in the quantum software field.
3:45 PM	<b>Talk 9.1: Opportunities with Quantum Computing Software - Programming, Algorithms and Applications</b> Speaker: <b>Pranay Prakash</b> - CEO and Founder, Qubrid
4:00 PM	<b>Talk 9.2: Design of Software for Future 6G-Quantum Networks</b> Speaker: <b>Riccardo Bassoli</b> - Assistant Professor, Technische Universität Dresden Co-founder and Managing Director, QcomBIT GmbH
4:15 PM	<b>Talk 9.3: Quantum Networking Software</b> Speaker: <b>Wojciech Kozlowski</b> - Quantum Network Engineer, QuTech
4:30 PM	<b>Conference Wrap-up/Conference Ends</b>

Program schedule up-to-date as of 10/13/2023. Program is subject to change.

<b>EXHIBIT HALL HOURS</b> Located on the 11th floor
<b>Tuesday, October 24</b> 11:30am - 7:00pm (Welcome Networking Reception - 6:00pm - 7:00pm)
<b>Wednesday, October 25</b> 11:00am - 6:00pm
<b>Thursday, October 26</b> 11:00am - 3:15pm



2023 Edition

# QUANTUM TECHNOLOGY INDUSTRY REPORT 2023

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- Quantum cybersecurity
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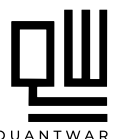
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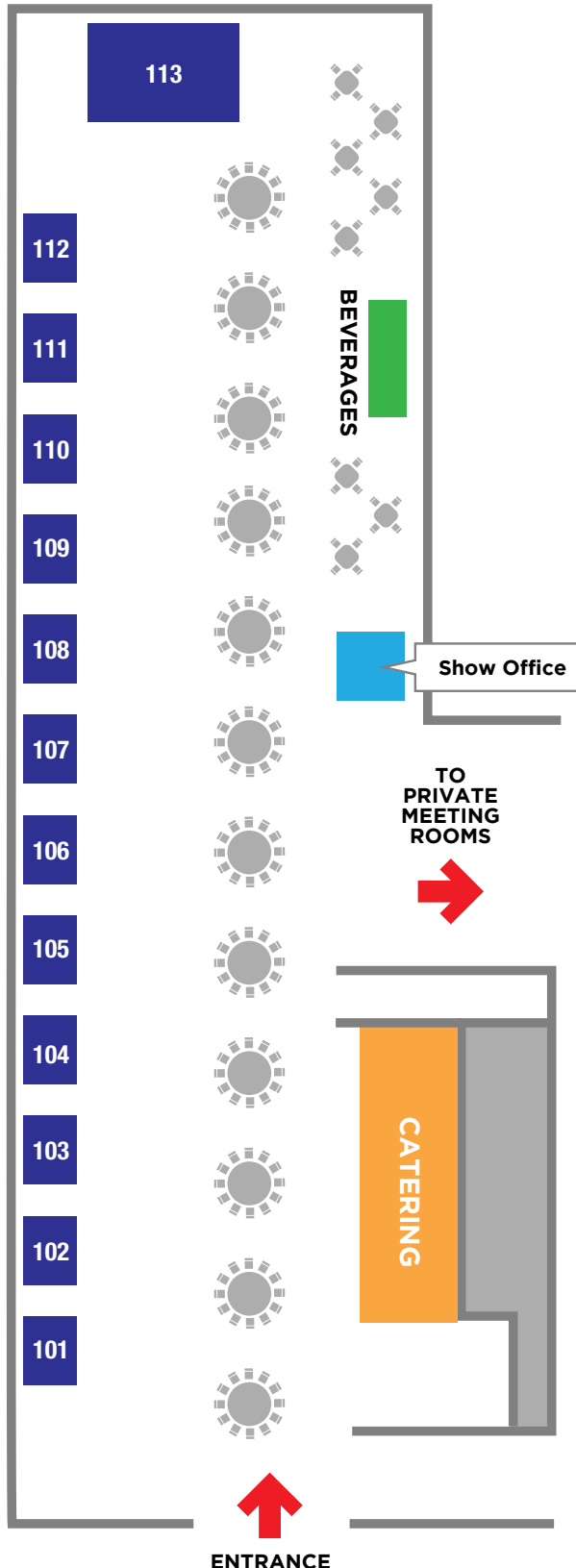


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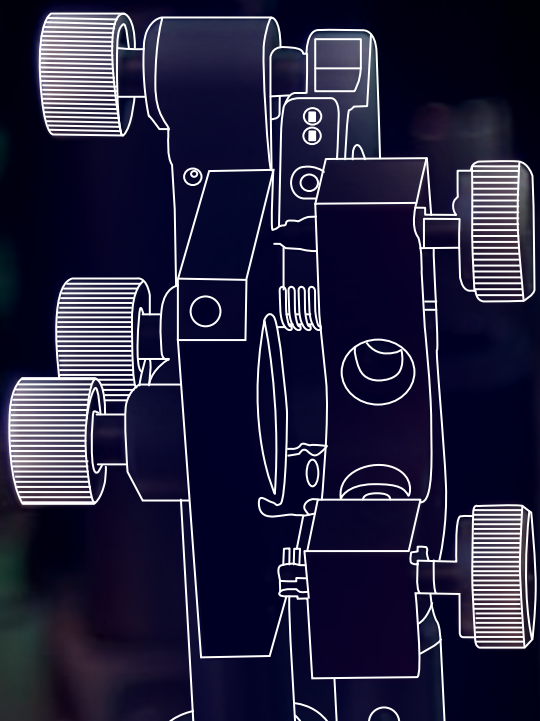
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QuTech, a collaboration between Delft University of Technology and Dutch research institute TNO, is a front-runner in the development of scalable prototypes of a quantum computer and an inherently safe quantum internet. To achieve this mission, we're bringing together a global group of scientists, engineers and industry, as well as our fast-growing ecosystem of startups, in an inspiring environment on and around the Delft University Campus.

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Founded in April 2020, Quantum Dice is an award-winning venture-backed spinout from the University of Oxford's world-renowned quantum optics laboratory. It has developed a self-certifying DISC TM quantum random number generator (QRNG) to deliver verifiably high-quality random numbers at world-leading multi-Gbps rates.

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Aliro Quantum, The Quantum Networking Company™, offers AliroNet™ to emulate, pilot, and deploy entanglement-based secure networks that are capable of running a wide variety of applications from secure communications to clustered quantum computing and distributed quantum sensing. Aliro, spun out of NarangLab at Harvard University, includes world-class experts in quantum and classical networking and is leading quantum network development by offering the foundational technologies needed for organizations around the world to build scalable and powerful distributed entanglement-based secure systems. AliroNet™ users include utility companies, telecommunications providers, public sector organizations, enterprises, and researchers who are simulating, designing, piloting, orchestrating, and building entanglement-based secure networks.

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Carrousel Digital develops and promotes new Digital security devices and processes. It currently focuses on quantum safe security, with a quantum safe signature, a data transmission using entangled photons that provides fast and secure data transmission, as well as a photonic router to enable photon transmissions within a network.

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ID Quantique (IDQ) is the world leader in quantum-safe crypto solutions designed to protect data for the long-term future. The company provides quantum-safe network encryption, secure quantum key generation and quantum key distribution solutions and services to the financial industry, enterprises and government organizations globally.

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Yokohama, Japan



LQUOM is a quantum startup from Yokohama National University in Japan. LQUOM is developing a quantum repeater system for the quantum internet. We recently launched a cavity-enhanced two-photon source as a commercial product. The cavity enhancement of the photon source allows efficient coupling with a rare-earth doped quantum memory, such as Pr: YSO. We continue to develop a photon source, a quantum memory, and interface technologies to realize a quantum repeater system as a commercial product.

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Quantropi provides quantum-secure encryption and quantum key generation and distribution services to enterprises, governments, product manufacturers, and the IoT space, through its flagship QiSpace™ platform. QiSpace is the only offering that provides all three prerequisites for end-to-end quantum security — Trust, Uncertainty, and Entropy — TrUE. Quantropi's TrUE product suite is fast, lightweight, and works seamlessly over TODAY's Internet, making it the perfect choice from server environments to mobile and even embedded systems.

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The Netherlands



In Delft, a vibrant ecosystem of companies orbiting around quantum technology institute QuTech has taken root. As members of the Quantum Delft community, these tech leaders are providing the world with leading quantum computer technology and solutions for inherently safe quantum networks. In fact, you can find all you need for the full hardware and networking stack in Delft. At IQT New York, meet representatives from QuantWare, Single Quantum and Qblox.



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