

V80 — QCE20 — IEEE Quantum Week Advance Program — Tuesday, October 13, 2020

Mountain Time MDT (UTC-6)	Session Name	Session Type	Session Room	Monday Sessions
08:00–19:45	Tue-ONB-10	Onboard	Discover1	QCE20 Welcome, Onboarding & Quote of the Day
08:00–19:45	Tue-OVE-10	Onboard	Discover2	QCE20 Daily Sessions Overview & Announcements
08:30–10:00	Tue-KEY-11	Keynote	Eagle	<u>Announcements, Awards</u> <u>Keynote: Patty Lee, Honeywell Quantum Solutions, USA</u> <u>High Performance Quantum Computing with Trapped Ions</u> <u>Session Chair: Travis Humble, Oak Ridge National Laboratory (ORNL)</u>
10:00–10:45	Tue-KEY-12	Network	Eagle	<u>Hang out with Keynote Speaker Patty Lee</u>
10:00–10:45	Tue-EKEY-12	Exhibit	Keysight	<u>Keysight — Scheduled Exhibits</u>
10:00–10:45	Tue-ETOP-12	Exhibit	Toptica	<u>Toptica — Scheduled Exhibits</u>
10:00–10:45	Tue-EELY-12	Exhibit	Elyah	<u>Elyah — Scheduled Exhibits</u>
10:00–10:45	Tue-EOXF-12	Exhibit	Oxford-Inst	<u>Oxford Instruments — Scheduled Exhibits</u>
10:00–10:45	Tue-POS-12	Posters	Bison	<u>Poster Session on Ion Trap Hardware and Software Technologies 1 — Session Chair: Tom Markham, Honeywell Quantum Solutions</u> <u>Pos1: Virginia Frey, Richard Rademacher, Noah Greenberg, Nikolay Videnov, Matthew Day, Crystal Senko and Rajibul Islam: A unified software control system for open-access trapped ion quantum computers</u> <u>Pos2: Richard Rademacher, Virginia Frey, Noah Greenberg, Nikolay Videnov, Matthew Day, Crystal Senko and Rajibul Islam: A unified electronic control system for open-access trapped ion quantum computers</u>
10:00–10:45	Tue-BOF-12	BoF	Hawk	<u>IEEE Concil on Superconductivity (CSC) BoF</u>
10:00–10:45	Tue-NW1-12	Network	WiseOwl1	<u>Networking Session — Meet Quantum Newcomers</u>
10:00–10:45	Tue-NW2-12	Network	WiseOwl2	<u>Networking Session — Meet Quantum Enthusiasts</u>
10:00–10:45	Tue-COL-12	Break	Rockies	<u>Relax in Beautiful Colorado</u>
10:45–11:15	Tue-QCSC1-13	Paper	Bighorn1	<u>Paper Session on Quantum Communications, Sensing & Cryptography QCSC1 — Session Chair: Lajos Hanzo, University of Southampton</u> <u>QCSC1: Patricio Fuentes, Josu Etxezarreta Martinez, Pedro M. Crespo, Tecnun – University of Navarra and Javier Garcia-Frías, University of Delaware. Performance of non-CSS LDGM-based quantum codes over the Misidentified Depolarizing Channel</u>
11:15–11:45	Tue-QCSC1-13	Paper	Bighorn1	<u>QCSC1: Josu Etxezarreta Martinez, Patricio Fuentes, Pedro M. Crespo, Tecnun – University of Navarra and Javier Garcia-Frías, University of Delaware. Pauli channel online estimation protocol for quantum turbo codes</u>
11:45–12:15	Tue-QCSC1-13	Paper	Bighorn1	<u>QCSC1: Muyuan Li, Georgia Institute of Technology and Theodore Yoder, IBM T.J. Watson Research Center. A numerical study of Bravyi-Bacon-Shor and subsystem hypergraph product codes</u>
10:45–11:15	Tue-QASN1-13	Paper	Bighorn2	<u>Paper Session on Quantum Applications and Nature Simulation QASN1 — Session Chair: Reena Dayal Yadav, Microsoft</u> <u>QASN1: Khaled Kelany, Nikitas Dimopoulos, Clemens Adolphs, Bardia Barabadi and Amirali Baniyasi, University of Victoria. Quantum annealing approaches to the phase-unwrapping problem in synthetic-aperture radar imaging</u>
11:15–11:45	Tue-QASN1-13	Paper	Bighorn2	<u>QASN1: Francesco Tacchino, Panagiotis Barkoutsos, Chiara Macchiavello, Dario Gerace, Ivano Tavernelli and Daniele Bajoni, IBM Research Europe, Zürich and University of Pavia. Variational learning for quantum artificial neural networks</u>

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10:45–12:15	Tue-TUT-13	Tutorial	Bear1	<u>Part 1: Introduction to Azure Quantum—Tibble, Granade, Prawiroatmodjo, Soeken, Shaffer: Microsoft Azure Quantum</u> Session Chair: Scott Koziol, Baylor University
10:45–12:15	Tue-TUT-13	Tutorial	Bear2	<u>Part 1: Quantum Machine Learning for Data Scientists—Fuller: IBM Quantum; Zoufal: IBM Quantum & ETH Zürich</u> Session Chair: Bruce Kraemer, IEEE Quantum Initiative
10:45–12:15	Tue-TUT-13	Tutorial	Bear3	<u>Part 1: Practical Quantum Programming—Gottlieb, D-Wave Systems</u> Session Chair: Catherine McGeoch, D-Wave Systems
10:45–12:15	Tue-TUT-13	Tutorial	Bear4	<u>Part 1: Quantum Hardware Control: A Hands-on Introduction—Alexander, Earnest: IBM Quantum</u> Session Chair: Elie Track, nVizix LLC
10:45–12:15	Tue-WKS-13	Workshop	Elk1	<u>Part 1: Engineering Trapped Ion Quantum Computers—Lee, Markham, Belt, Lytle, Markham, Mathewson: Honeywell</u> <u>Quantum Solutions; Genco: NTIA</u> Session Chair: Travis Humble, Oak Ridge National Laboratory (ORNL)
10:45–12:15	Tue-WKS-13	Workshop	Elk2	<u>Part 1: Architectural Guidelines and Best Practices for Scalable Circuit QED Quantum Computing—Thiele, Kirste, Mahajan: Zurich</u> <u>Instruments; Wilhelm-Mauch: Saarland University</u> Session Chair: Kristel Michielson, Forschungszentrum Jülich GmbH
10:45–12:15	Tue-WKS-13	Workshop	Elk3	<u>Part 1: Solution Architecture for Quantum Hardware & Software Development—Khan: Khalifa U, Abu Dhabi; Bleiler: Portland</u> <u>State U; Reinhardt: Quantum Computing Inc., Leesburg; Weinstein: MITRE Corp; Dridi: Quantum Computing</u> Session Chair: Erik DeBenedictis, Zettaflops LLC
10:45–12:15	Tue-WKS-13	Workshop	Elk4	<u>Part 1: Quantum Software Engineering and Technology—Pérez-Castillo: University of Castilla-La Mancha, Spain; Piattini,</u> <u>Peterssen, Hevia: aQuantum, Spain</u> Session Chair: Hausi Müller, University of Victoria

12:15–13:00	Tue-EHWE-14	Exhibit	Honeywell	<u>Honeywell Quantum Solutions — Scheduled Exhibits</u>
12:15–13:00	Tue-ECTR-14	Exhibit	Q-Ctrl	<u>Q-Ctrl — Scheduled Exhibits</u>
12:15–13:00	Tue-EIQM-14	Exhibit	IQM	<u>IQM — Scheduled Exhibits</u>
12:15–13:00	Tue-POS-14	Posters	Bison	<u>Poster Session on Ion Trap Hardware and Software Technologies 2 — Session Chair: Winfried Hensinger, University of Sussex</u> <u>Pos1: Tomas Navickas, Mitchell Peaks, Chris Knapp, Christophe Valahu, Foni R. Lebrun-Gallagher, Martin Siegele, Reuben K.</u> <u>Puddy, Seokjun Hong, David F. Murgia, Eamon D. Standing, Adam M. Lawrence, Zak D. Romaszko, Sebastian Weidt and Winfried</u> <u>K. Hensinger: Towards high-fidelity logical gates with trapped ion qubits</u> <u>Pos2: Quentin Bodart, Foni Lebrun-Gallagher, Nicholas Johnson, Martin Siegele, Seokjun Hong, Sebastian Weidt and Winfried</u> <u>Hensinger: Constructing a scalable trapped-ion quantum computer demonstrator device</u> <u>Pos3: Samuel Hile, Alex Owens, David Breaud, Raphael Lebrun, Martin Siegele, Seokjun Hong, Reuben Puddy, Sebastian Weidt</u> <u>and Winfried Hensinger: Engineering a scalable logical qubit in a 2D surface ion trap array</u> <u>Pos4: David Breaud, Samuel Hile, Alexander Owens, Daisy Smith, Sebastian Weidt, Florian Mintert and Winfried Hensinger:</u> <u>Open source quantum code compilation for scalable trapped ion quantum processors</u> <u>Pos5: Mark Webber, Steven Herbert, Sebastian Weidt and Winfried Hensinger: Enabling global connectivity in a shuttling based</u> <u>trapped ion quantum computer with efficient routing</u>
12:15–13:00	Tue-BOF-14	BoF	Hawk	<u>Open BoF Session</u>
12:15–13:00	Tue-NW1-14	Network	WiseOwl1	<u>Networking Session — Meet Quantum Newcomers</u>
12:15–13:00	Tue-NW2-14	Network	WiseOwl2	<u>Networking Session — Meet Quantum Enthusiasts</u>
12:15–13:00	Tue-COL-14	Break	Rockies	<u>Relax in Beautiful Colorado — Hike the Rockies</u>

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13:00–13:30	Tue-QCSC2-15	Paper	Bighorn1	<u>Paper Session on Quantum Communications, Sensing & Cryptography QCSC2 — Session Chair: Helena Zhang, IBM Quantum</u> <u>QCSC2: Omar Amer, Walter O. Krawec and Bing Wang, University of Connecticut. Efficient routing for quantum key distribution Networks</u>
13:30–14:00	Tue-QCSC2-15	Paper	Bighorn1	<u>QCSC2: Boxi Li, ETH Zürich; Tim Coopmans and David Elkouss, Delft University of Technology. Efficient optimization of cut-offs in quantum repeater chains</u>
13:00–13:30	Tue-QASN2-15	Paper	Bighorn2	<u>Paper Session on Quantum Applications and Nature Simulation QASN2 — Session Chair: Irene Qualters, Los Alamos National Laboratory (LANL)</u> <u>QASN2: Adam Holmes and Anne Matsuura, Intel Labs. Efficient quantum circuits for accurate preparation of smooth, differentiable quantum states</u>
13:30–14:00	Tue-QASN2-15	Paper	Bighorn2	<u>QASN2: Nicolas Sawaya, Gian Giacomo Guerreschi and Adam Holmes, Intel Labs. On connectivity-dependent resource requirements for digital quantum simulation of d-level particles</u>
13:00–14:30	Tue-TUT-15	Tutorial	Bear1	<u>Part 2: Introduction to Azure Quantum—Tibble, Granade, Prawiroatmodjo, Soeken, Shaffer: Microsoft Azure Quantum</u>
13:00–14:30	Tue-TUT-15	Tutorial	Bear2	<u>Part 2: Quantum Machine Learning for Data Scientists—Fuller: IBM Quantum; Zoufal: IBM Quantum & ETH Zürich</u>
13:00–14:30	Tue-TUT-15	Tutorial	Bear3	<u>Part 2: Practical Quantum Programming—Gottlieb, D-Wave Systems</u>
13:00–14:30	Tue-TUT-15	Tutorial	Bear4	<u>Part 2: Quantum Hardware Control: A Hands-on Introduction—Alexander, Earnest: IBM Quantum</u>
13:00–14:30	Tue-WKS-15	Workshop	Elk1	<u>Part 2: Engineering Trapped Ion Quantum Computers—Lee, Markham, Belt, Lytle, Markham, Mathewson: Honeywell Quantum Solutions; Genco: NTIA</u>
13:00–14:30	Tue-WKS-15	Workshop	Elk2	<u>Part 2: Architectural Guidelines and Best Practices for Scalable Circuit QED Quantum Computing—Thiele, Kirste, Mahajan: Zurich Instruments; Wilhelm-Mauch: Saarland University</u>
13:00–14:30	Tue-WKS-15	Workshop	Elk3	<u>Part 2: Solution Architecture for Quantum Hardware & Software Development—Khan: Khalifa U, Abu Dhabi; Bleiler: Portland State U; Reinhardt: Quantum Computing Inc., Leesburg; Weinstein: MITRE Corp; Dridi: Quantum Computing</u>
13:00–14:30	Tue-WKS-15	Workshop	Elk4	<u>Part 2: Quantum Software Engineering and Technology—Pérez-Castillo: University of Castilla-La Mancha, Spain; Piattini, Peterssen, Hevia: aQuantum, Spain</u>
14:30–15:15	Tue-EMIC-16	Exhibits	Microsoft	<u>Microsoft Quantum - Scheduled Exhibits</u>
14:30–15:15	Tue-EXAN-16	Exhibits	Xanadu	<u>Xanadu - Scheduled Exhibits</u>
14:30–15:15	Tue-EseQ-16	Exhibits	seeQC	<u>seeQC - Scheduled Exhibits</u>
14:30–15:15	Tue-POS-16	Posters	Bison	<u>Poster Session on Ion Trap Hardware and Software Technologies 3 — Session Chair: Patty Lee, Honeywell Quantum Solutions</u> <u>Pos1: David Allcock, Chris Ballance, Sébastien Bourdeauducq, Joseph Britton, Michal Gaska, Thomas Harty, Jakub Jarosinski, Robert Jördens, Paweł Kulik, David Nadlinger, Krzysztof Pozniak, Tomasz Przywozki, Daniel Slichter, Mikolaj Sowinski, Weida Zhang and Grzegorz Kasprawicz: Sinara: An Open Hardware Ecosystem for Quantum Physics</u> <u>Pos2: Miguel Usach, Jon Kraft and Fintan Leamy: Low noise controllers for Ion-Trap Quantum Computers</u>
14:30–15:15	Tue-BOF-16	BoF	Hawk	<u>Open BoF Session</u>
14:30–15:15	Tue-NW1-16	Network	WiseOwl1	<u>Networking Session — Meet Quantum Experts</u>
14:30–15:15	Tue-NW2-16	Network	WiseOwl2	<u>Networking Session — Meet Quantum Enthusiasts</u>
14:30–15:15	Tue-COL-16	Break	Rockies	<u>Relax in Beautiful Colorado — Ski the Rockies</u>

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15:15–15:45	Tue-QCSC3-17	Paper	Bighorn1	<u>Paper Session on Quantum Communications, Sensing & Cryptography QCSC3 — Session Chair: Michel Barbeau, Carleton University</u> <u>QCSC3: Randy Kuang and Nicolas Bettenburg, Quantropi Inc., Ottawa. Quantum public key distribution using randomized Glauber states</u>
15:45–16:15	Tue-QCSC3-17	Paper	Bighorn1	<u>QCSC3: Andrew Reinders, Santosh Ghosh, Rafael Misoczki and Manoj Sastry, Intel Labs. Efficient BIKE hardware design with constant-time decoder</u>
16:15–16:45	Tue-QCSC3-17	Paper	Bighorn1	<u>QCSC3: Noel De la Cruz, Uttam Paudel, Ethan Tucker, Andrew Mollner, Joseph Betser, Pavel Ionov, Joseph Touch and Joshua Stoermer, The Aerospace Corporation El Segundo, California. Decoy-state quantum key distribution with direct modulated commercial off-the-shelf VCSEL lasers</u>
15:15–16:45	Tue-TUT-17	Tutorial	Bear1	<u>Part 3: Introduction to Azure Quantum—Tibble, Granade, Prawiroatmodjo, Soeken, Shaffer: Microsoft Azure Quantum</u>
15:15–16:45	Tue-TUT-17	Tutorial	Bear2	<u>Part 3: Quantum Machine Learning for Data Scientists—Fuller: IBM Quantum; Zoufal: IBM Quantum & ETH Zürich</u>
15:15–16:45	Tue-TUT-17	Tutorial	Bear3	<u>Part 3: Practical Quantum Programming—Gottlieb, D-Wave Systems</u>
15:15–16:45	Tue-TUT-17	Tutorial	Bear4	<u>Part 3: Quantum Hardware Control: A Hands-on Introduction—Alexander, Earnest: IBM Quantum</u>
15:15–16:45	Tue-WKS-17	Workshop	Elk1	<u>Part 3: Engineering Trapped Ion Quantum Computers—Lee, Markham, Belt, Lytle, Markham, Mathewson: Honeywell Quantum Solutions; Genco: NTIA</u>
15:15–16:45	Tue-WKS-17	Workshop	Elk2	<u>Part 3: Architectural Guidelines and Best Practices for Scalable Circuit QED Quantum Computing—Thiele, Kirste, Mahajan: Zurich Instruments; Wilhelm-Mauch: Saarland University</u>
15:15–16:45	Tue-WKS-17	Workshop	Elk3	<u>Part 3: Solution Architecture for Quantum Hardware & Software Development—Khan: Khalifa U, Abu Dhabi; Bleiler: Portland State U; Reinhardt: Quantum Computing Inc., Leesburg; Weinstein: MITRE Corp; Dridi: Quantum Computing</u>
15:15–16:45	Tue-WKS-17	Workshop	Elk4	<u>Part 3: Quantum Software Engineering and Technology—Pérez-Castillo: University of Castilla-La Mancha, Spain; Piattini, Peterssen, Hevia: aQuantum, Spain</u>
16:45–17:30	Tue-EIBM-18	Exhibits	IBM	<u>IBM Quantum — Scheduled Exhibits</u>
16:45–17:30	Tue-EZAP-18	Exhibits	Zapata	<u>Zapata Computing — Scheduled Exhibits</u>
16:45–17:30	Tue-POS-18	Posters	Bison	<u>Poster Sesion on Ion Trap Hardware and Software Technologies 4 — Session Chair: Tom Markham, Honeywell Quantum Solutions</u> <u>Pos1: Dave Campagna and Tom Markham: Engineering mid-circuit measurement</u> <u>Pos2: Ryan Daniel: Cryotronics Test Chamber</u> <u>Pos3: Ryan Jacobs: Automated testing methods of surface ion traps in quantum computing</u> <u>Ion Trap Hardware and Software Technologies 3 — PosterSession Chair: Tom Markham, Honeywell Quantum Solutions</u>
16:45–17:30	Tue-BOF-18	BoF	Hawk	<u>Open BoF Session</u>
16:45–17:30	Tue-NW1-18	Network	WiseOwl1	<u>Networking Session — Meet Quantum Experts</u>
16:45–17:30	Tue-NW2-18	Network	WiseOwl2	<u>Networking Session — Meet Quantum Enthusiasts</u>
16:45–17:30	Tue-COL-18	Break	Rockies	<u>Relax in Beautiful Colorado — Enjoy Nature</u>

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19:00–19:45	Tue-KEY-19	Keynote	Eagle	<u>Announcements, Awards</u> <u>Keynote: Yu Chen, Google AI Quantum Lab, USA</u> <u>Developing Technologies Towards a Error-Corrected Quantum Computer</u> <u>Candace Culhane, Los Alamos National Laboratory (LANL)</u>
19:00–19:45	Tue-KEY-20	Network	Eagle	Hang out with Keynote Speaker Yu Chen
19:00–19:45	Tue-EERO-18	Exhibit	EeroQ	EeroQ - Scheduled Exhibits
19:00–19:45	Tue-EXOP-20	Exhibits	Patrons	Open Exhibits
19:00–19:45	Tue-POSO20	Posters	Bison	Open Posters
19:00–19:45	Tue-BOFO-20	BoF	Hawk	Open BoF Session
19:00–19:45	Tue-NW1-20	Network	WiseOwl1	Networking Session — Meet Quantum Experts
19:00–19:45	Tue-NW2-20	Network	WiseOwl2	Networking Session — Meet Quantum Enthusiasts
19:00–19:45	Tue-COL-20	Break	Rockies	Relax in Beautiful Colorado — Enjoy Nature