

V80 — QCE20 — IEEE Quantum Week Advance Program — Wednesday, October 14, 2020

Mountain Time MDT (UTC-6)	Session Name	Session Type	Session Room	Monday Sessions
08:00–19:45	Wed-ONB-10	Onboard	Discover1	QCE20 Welcome, Onboarding & Quote of the Day
08:00–19:45	Wed-OVE-10	Onboard	Discover2	QCE20 Daily Sessions Overview & Announcements
08:30–10:00	Wed-KEY-11	Keynote	Eagle	<u>Announcements, Awards</u> <u>Keynote: Krysta Svore, Microsoft Research, USA</u> <u>Quantum Learning: Applying Quantum Ideas to Classical Computing</u> <u>Session Chair: Travis Humble, Oak Ridge National Laboratory (ORNL)</u>
10:00–10:45	Wed-KEY-12	Network	Eagle	<u>Hang out with Keynote Speaker Krysta Svore</u>
10:00–10:45	Wed-EIQM-12	Exhibit	IQM	<u>IQM — Scheduled Exhibits</u>
10:00–10:45	Wed-ENET-12	Exhibit	netlabs	<u>netlabs — Scheduled Exhibits</u>
10:00–10:45	Wed-EDEL-12	Exhibit	Delft-Circuits	<u>Delft Circuits — Scheduled Exhibits</u>
10:00–10:45	Wed-EOXF-12	Exhibit	Oxford-Inst	<u>Oxford Instruments — Scheduled Exhibits</u>
10:00–10:45	Wed-POS-12	Posters	Bison	<u>Poster Session on Hybrid Quantum-Classical Computing and Applications — Session Chair: Ulrike Stege, University of Victoria</u> <u>Pos1: Daniel Claudino, Jerimiah Wright, Alexander McCaskey, Dmitry Lyakh and Travis Humble: VQE Approaches for Quantum Chemistry in XACC</u> <u>Pos2: Prashanti Priya Angara: Problem Solving in the NISQ Era: Exploring Hybrid Quantum-Classical Approaches</u>
10:00–10:45	Wed-BOF-12	BoF	Hawk	<u>Open BoF Session</u>
10:00–10:45	Wed-NW1-12	Network	WiseOwl1	<u>Networking Session — Meet Quantum Newcomers</u>
10:00–10:45	Wed-NW2-12	Network	WiseOwl2	<u>Networking Session — Meet Quantum Enthusiasts</u>
10:00–10:45	Wed-COL-12	Break	Rockies	<u>Relax in Beautiful Colorado</u>
10:45–11:15	Wed-QC1-13	Paper	Bighorn2	<u>Paper Session on Quantum Computing QC1 — Session Chair: Session Chair: Travis Humble, Oak Ridge National Laboratory (ORNL)</u> <u>QC1: Jun Doi and Hiroshi Horii, IBM Research Tokyo. A cache blocking technique to large scale quantum computing simulation on supercomputers</u>
11:15–11:45	Wed-QC1-13	Paper	Bighorn2	<u>QC1: Davis, Ethan Smith, Ana Tudor, Koushik Sen, Irfan Siddiqi, University of California Berkeley and Costin Iancu, Lawrence Berkeley National Laboratory. Towards depth optimal, topology aware quantum circuit synthesis</u>
11:45–12:15	Wed-QC1-13	Paper	Bighorn2	<u>QC1: Michel Barbeau, Carleton University, Joaquin Garcia-Alfaro, SAMOVAR, Telecom SudParis and Evangelos Kranakis, Carleton University. Capacity requirements of quantum repeaters</u>
10:45–11:15	Wed-QCSC4-13	Paper	Bighorn1	<u>Paper Session on Quantum Communications, Sensing & Cryptography QCSC4 — Session Chair: Akbar Sayeed, University of Wisconsin</u> <u>QCSC4: Dov Fields, City University of New York; Arpad Varga, University of Pécs, Hungary and Janos Bergou, City University of New York. Sequential measurements on qubits by multiple observers: Joint best guess strategy</u>
11:15–11:45	Wed-QCSC4-13	Paper	Bighorn1	<u>QCSC4: Janis Nötzel and Stephen DiAdamo, Technische Universität München. Entanglement-enhanced communication networks</u>
11:45–12:15	Wed-QCSC4-13	Paper	Bighorn1	<u>QCSC4: Randy Kuang and Nicolas Bettenburg, Quantropi Inc., Ottawa. Shannon perfect secrecy in a discrete Hilbert space</u>

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10:45–12:15	Wed-TUT-13	Tutorial	Bear1	<u>Part 1: Quantum Algorithms for Optimization—Woerner, Scholten: IBM Quantum</u> <u>Session Chair: Ulrike Stege, University of Victoria</u>
10:45–12:15	Wed-TUT-13	Tutorial	Bear2	<u>Part 1: Quantum Machine Learning with PennyLane—Killoran, Izaac: Xanadu Toronto</u> <u>Session Chair: Candace Culhane, Los Alamos National Laboratory (LANL)</u>
10:45–12:15	Wed-TUT-13	Tutorial	Bear3	<u>Part 1: Preparing the Future Quantum Workforce—Venegas-Gomez, QURECA Ltd., Glasgow</u> <u>Session Chair: Bruce Kraemer, IEEE Quantum Initiative</u>
10:45–12:15	Wed-WKS-13	Workshop	Elk1	<u>Part 1: Quantum Curriculum Development with Microsoft Quantum Development Kit—Tsang, Mykhailova: Microsoft Quantum Research</u> <u>Session Chair: Scott Koziol, Baylor University</u>
10:45–12:15	Wed-WKS-13	Workshop	Elk2	<u>Part 1: Tuning Strategies for Quantum Annealing—Grant, ORNL; McGeoch: D-Wave Systems</u> <u>Session Chair: Kristel Michielson, Forschungszentrum Jülich GmbH</u>
10:45–12:15	Wed-WKS-13	Workshop	Elk3	<u>Part 1: Qubit Control Requirements for Practical Scalable Quantum Computation—Root: Keysight Technologies, Santa Rosa; Messaoudi: Keysight Technologies, Waterloo</u> <u>Session Chair: Travis Humble, Oak Ridge National Laboratory (ORNL)</u>
10:45–12:15	Wed-WKS-13	Workshop	Elk4	<u>Part 1: Photonics-based Quantum Computing and Simulation—Chrostowski, UBC; McKinstrie, LGS; Srinivasan, NIST</u> <u>Amr Helmy, University of Toronto</u>
12:15–13:00	Wed-EMIC-14	Exhibit	Microsoft	<u>Microsoft Quantum — Scheduled Exhibits</u>
12:15–13:00	Wed-EQM-14	Exhibit	QM	<u>Quantum Machines (QM) — Scheduled Exhibits</u>
12:15–13:00	Wed-ETOP-14	Exhibit	Toptica	<u>Toptica — Scheduled Exhibits</u>
12:15–13:00	Wed-EZUR-14	Exhibit	Zurich-Inst	<u>Zurich Instruments— Scheduled Exhibits</u>
12:15–13:00	Wed-POS-14	Posters	Bison	<u>Poster Session on Quantum Machine Learning (QML) — Session Chair: Andreas Bergen, engageLively</u> <u>Pos1: Siddharth Sharma: Implementing a Novel Quantum K-Nearest Neighbors Learning Algorithm for Breast Cancer Detection</u> <u>Pos2: Vinit Kumar Singh and Brenda Rubenstein: Quantum Neural Networks for Analyzing X-Ray Scattering Data</u>
12:15–13:00	Wed-BOF-14	BoF	Hawk	<u>BoF: Quantum Computing for High Energy Physics</u>
12:15–13:00	Wed-NW1-14	Network	WiseOwl1	<u>Networking Session Meet Quantum Newcomers</u>
12:15–13:00	Wed-NW2-14	Network	WiseOwl2	<u>Networking Session — Meet Quantum Enthusiasts</u>
12:15–13:00	Wed-COL-14	Break	Rockies	<u>Relax in Beautiful Colorado — Hike the Rockies</u>
13:00–13:30	Wed-QC2-15	Paper	Bighorn1	<u>Paper Session on Quantum Computing QC2 — Session Chair: Natalie Brown, Honeywell Quantum Solutions</u> <u>QC2: Elijah Pelofske, Los Alamos National Laboratory; Georg Hahn, Harvard University and Hristo Djidjev, Los Alamos National Laboratory. Advanced anneal paths for improved quantum annealing</u>
13:30–14:00	Wed-QC2-15	Paper	Bighorn1	<u>QC2: Wim Lavrijsen, Lawrence Berkeley National Laboratory; Ana Tudor, University of California Berkeley; Juliane Mueller, Costin Iancu and Wibe De Jong, Lawrence Berkeley National Laboratory. Classical optimizers for noisy intermediate-scale quantum devices</u>
13:30–14:00	Wed-QC2-15	Paper	Bighorn1	<u>QC2: Tudor Giurgica-Tiron, Yousef Hindy, Stanford University; Ryan LaRose, Michigan State University; Andrea Mari, Xanadu and William Zeng, Goldman, Sachs & Co, Unitary Fund. Portable and efficient zero noise extrapolation for quantum error mitigation</u>
13:00–14:30	Wed-PAN-15	Panel	Moose	<u>Panel: Pivoting into Quantum Computing</u> <u>Organizers: Abraham Asfaw, Rajeev Malik, Travis Scholten: IBM Quantum</u> <u>Moderator: Travis Humble, Oak Ridge National Lab</u> <u>Panelists: Luuk Ament, Julianna Murphy, Andrew Wack, Paco Martin, Jessie Yu, Ben Fearon, IBM</u>

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13:00–14:30	Wed-TUT-15	Tutorial	Bear1	Part 2: Quantum Algorithms for Optimization—Woerner, Scholten: IBM Quantum
13:00–14:30	Wed-TUT-15	Tutorial	Bear2	Part 2: Quantum Machine Learning with PennyLane—Killoran, Izaac: Xanadu Toronto
13:00–14:30	Wed-TUT-15	Tutorial	Bear3	Part 2: Preparing the Future Quantum Workforce—Venegas-Gomez, QURECA Ltd., Glasgow
13:00–14:30	Wed-WKS-15	Workshop	Elk1	Part 2: Quantum Curriculum Development with Microsoft Quantum Development Kit—Tsang, Mykhailova: Microsoft Quantum Research
13:00–14:30	Wed-WKS-15	Workshop	Elk2	Part 2: Tuning Strategies for Quantum Annealing—Grant, ORNL; McGeoch: D-Wave Systems
13:00–14:30	Wed-WKS-15	Workshop	Elk3	Part 2: Qubit Control Requirements for Practical Scalable Quantum Computation—Root: Keysight Technologies, Santa Rosa; Messaoudi: Keysight Technologies, Waterloo
13:00–14:30	Wed-WKS-15	Workshop	Elk4	Part 2: Photonics-based Quantum Computing and Simulation—Chrostowski, UBC; McKinstrie, LGS; Srinivasan, NIST
14:30–15:15	Wed-EIBM-16	Exhibits	IBM	IBM Quantum — Scheduled Exhibits
14:30–15:15	Wed-EZAP-16	Exhibits	Zapata	Zapata — Scheduled Exhibits
14:30–15:15	Wed-EALI-16	Exhibits	Aliro	Aliro Quantum — Scheduled Exhibits
14:30–15:15	Wed-POS-16	Posters	Bison	Poster Session on Variational Techniques — Session Chair: Ulrike Stege, University of Victoria Pos1: Zak Webb: On the Universality of the Variational Quantum Eigensolver Framework Pos2: Slimane Thabet and Jean-Francois Hullo: Spectral embedding of graphs using quantum variational circuits
14:30–15:15	Wed-BOF-16	BoF	Hawk	Open BoF Session
14:30–15:15	Wed-NW1-16	Network	WiseOwl1	Networking Session — Meet Quantum Experts
14:30–15:15	Wed-NW2-16	Network	WiseOwl2	Networking Session — Meet Quantum Enthusiasts
14:30–15:15	Wed-COL-16	Break	Rockies	Relax in Beautiful Colorado — Ski the Rockies
15:15–15:45	Wed-QC3-17	Paper	Bighorn1	Paper Session on Quantum Computing QC3 — Session Chair: Andrew Sornberger, Los Alamos National Laboratory (LANL) QC3: Natalie Brown, Georgia Institute of Technology; Andrew Cross, IBM T.J. Watson Research Center and Kenneth Brown, Duke University. Critical faults of leakage errors on the surface code
15:45–16:15	Wed-QC3-17	Paper	Bighorn1	QC3: Jack Raymond, D-Wave Systems Burnaby, Guatum Rayaprolu, Ndiame Ndiaye, McGill University and Andrew King, D-Wave Systems Burnaby. Improving performance of logical qubits by parameter tuning and topology compensation
15:45–16:15	Wed-QC3-17	Paper	Bighorn1	QC3: Shavindra Premaratne and Anne Matsuura, Intel Labs. Engineering the cost function of a variational quantum algorithm for implementation on near-term devices
15:15–16:45	Wed-PAN-17	Panel	Moose	Panel on Towards a Practical Intermediate Representation (IR) for Quantum Organizer/Moderator: Yudong Cao: Zapata Computing Panelists: Blake Johnson, IBM; Sonika Johri, IonQ; Justin Hogaboam, Intel; Bettina Heim, Microsoft; Ntwali Toussaint, Zapata Computing; Will Zeng, Goldman Sachs
15:15–16:45	Wed-TUT-17	Tutorial	Bear1	Part 3: Quantum Algorithms for Optimization—Woerner, Scholten: IBM Quantum
15:15–16:45	Wed-TUT-17	Tutorial	Bear2	Part 3: Quantum Machine Learning with PennyLane—Killoran, Izaac: Xanadu Toronto
15:15–16:45	Wed-TUT-17	Tutorial	Bear3	Part 3: Preparing the Future Quantum Workforce—Venegas-Gomez, QURECA Ltd., Glasgow
15:15–16:45	Wed-WKS-17	Workshop	Elk1	Part 3: Quantum Curriculum Development with Microsoft Quantum Development Kit—Tsang, Mykhailova: Microsoft Quantum Research
15:15–16:45	Wed-WKS-17	Workshop	Elk2	Part 3: Tuning Strategies for Quantum Annealing—Grant, ORNL; McGeoch: D-Wave Systems
15:15–16:45	Wed-WKS-17	Workshop	Elk3	Part 3: Qubit Control Requirements for Practical Scalable Quantum Computation—Root: Keysight Technologies, Santa Rosa; Messaoudi: Keysight Technologies, Waterloo
15:15–16:45	Wed-WKS-17	Workshop	Elk4	Part 3: Photonics-based Quantum Computing and Simulation—Chrostowski, UBC; McKinstrie, LGS; Srinivasan, NIST

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16:45–17:30	Wed-EHWE-18	Exhibits	Honeywell	<u>Honeywell Quantum Solutions — Scheduled Exhibits</u>
16:45–17:30	Wed-EXAN-18	Exhibits	Xanadu	<u>Xanadu — Scheduled Exhibits</u>
16:45–17:30	Wed-POS-18	Posters	Bison	Open Posters
16:45–17:30	Wed-BOF-18	BoF	Hawk	<u>Driving Collaboration in Quantum in Region 10, Quantum SIG</u>
16:45–17:30	Wed-NW1-18	Network	WiseOwl1	Networking Session — Meet Quantum Experts
16:45–17:30	Wed-NW2-18	Network	WiseOwl2	Networking Session — Meet Quantum Enthusiasts
16:45–17:30	Wed-COL-18	Break	Rockies	Relax in Beautiful Colorado — Enjoy Nature
17:30–19:00	Wed-KEY-19	Keynote	Eagle	<u>Announcements, Awards</u> <u>Keynote: Kae Nemoto, National Institute of Informatics (NII), Japan</u> <u>The Internet of Quantum Things</u> <u>Amr Helmy, University of Toronto</u>
19:00–19:45	Wed-KEY-20	Network	Eagle	<u>Hang out with Keynote Speaker Kae Nemoto</u>
19:00–19:45	Wed-EXOP-20	Exhibits	Patrons	Open Exhibits
19:00–19:45	Wed-POS-20	Posters	Bison	Open Posters
19:00–19:45	Wed-BOF-20	BoF	Hawk	Open BoF Session
19:00–19:45	Wed-NW1-20	Network	WiseOwl1	Networking Session — Meet Quantum Experts
19:00–19:45	Wed-NW2-20	Network	WiseOwl2	Networking Session — Meet Quantum Enthusiasts
19:00–19:45	Wed-COL-20	Break	Rockies	Relax in Beautiful Colorado — Enjoy Nature