

# Progress and Challenges on Quantum Computer-Aided Design

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# IBM Quantum Summit 2020

Tuesday - September 15, 2020

## Day 1: Quantum Technology and User Ecosystem

<b>Eastern Time</b>	MC: Anthony Annunziata & Ken Wood (IBM)
<b>9:30am</b>	<b>Welcome &amp; the IBM Q Network Today</b>
<i>Talk</i>	Anthony Annunziata (IBM)
<b>9:45am</b>	<b>IBM Quantum Roadmap</b>
<i>Talk</i>	Jay Gambetta (IBM)
<b>10:10am</b>	<b>Promoting Quantum Science and Applications at DOE</b>
<i>Keynote</i>	Paul Dabbar (US Department Of Energy)
<b>10:30am</b>	<b>Co-Designing Hardware and Algorithms Towards Quantum Advantage</b>
<i>Panel</i>	Jerry Chow (IBM - moderator) Andrew Houck (Princeton University) Travis Humble (OakRidge National Lab) Pri Narang (Harvard University/Aliro) Laurent White (ExxonMobil)
<b>11:00am</b>	<b>Coffee Break</b>
<b>11:10am</b>	<b>Quantum Computing and the Future of Technology for Society</b>
<i>Keynote</i>	President Gonokami (University of Tokyo)
<b>11:30am</b>	<b>Quantum: A New Industry and Ecosystem</b>
<i>Panel</i>	Anthony Annunziata (IBM - moderator) Hiroaki Aihara (University of Tokyo) Torsten Siebert (Fraunhofer Institutes) Jeff Nichols (OakRidge National Lab) Timothy Lawrence (US Air Force Research Lab)
<b>12:05pm</b>	<b>Developing our Energy Future</b>
<i>Keynote</i>	Vijay Swarup (ExxonMobil)
<b>12:20pm</b>	<b>Lunch Break (40min) w/ Byte-Size Wellness</b>
<b>1:00pm</b>	<b>Building a Community with Open Source</b>
<i>Panel</i>	Liz Durst (IBM - moderator) Amira Abbas (University of KwaZulu-Natal) Farai Mazhandu (OneQuantum) Sabrina Maniscalco (University of Turku) Rajiv Krishnakumar (Goldman Sachs) Arman Zaribafiyani (1Qbit)
<b>1:45pm</b>	<b>Coffee Break</b>
<b>2:00pm</b>	<b>The Essential Link Between Academia and Industry</b>
<i>Keynote</i>	Chancellor Woodson (North Carolina State University), intro by Jamie Thomas (IBM)
<b>2:15pm</b>	<b>Quantum Hubs to Advance Education and Research</b>
<i>Panel</i>	Jamie Thomas (IBM - moderator) Dan Stancil (North Carolina State University) Vincent Aimez (University of Sherbrooke) Irene Qualters (Los Alamos National Lab) Dominic O'Brien (Oxford University) Kohei Itoh (Keio University)
<b>3:00pm</b>	<b>END of Day1 scheduled program</b>
<i>On-Demand</i>	On-demand content available

# IBM Quantum Summit 2020

## Wednesday - September 16, 2020

### Day 2: Industry Engagement and Developers

**Eastern Time** MC: Katie Pizzolato (IBM)

**9:30am** **Welcome from IBM**

*Talk* Anthony Annunziata (IBM)

**9:45am** **Quantum Computing: Our Final Frontier in Computing**

*Keynote* Sungwoo Hwang (Samsung Advanced Institute of Technology)

**10:00am** **Effort and Future Expectation for Quantum Computing in Japan**

*Keynote* Yasuhiro Sato (Mizuho Bank, Head of QIIC)

**10:10am** **The Promise of Quantum for Industry**

*Panel* Anthony Annunziata (IBM - moderator)

Amy Herhold (ExxonMobil)

Jay Lowell (Boeing)

Ben Boeser (Daimler)

Jamie Garcia (IBM)

**10:45am** **Coffee Break**

**11:00am** **Technical Updates: Quantum Application Research & Development**

*Series of Talks* Katie Pizzolato (IBM) - Intro to Applications R&D with the Q Network

Qi Gao (Mitsubishi Chemical)

Dimitar Trenev (ExxonMobil)

Gavin Jones (IBM)

Nikitas Stamatopoulos (Goldman Sachs)

Tomoki Tanaka (MUFG)

**12:00pm** **Enabling Quantum Application Developers**

*Series of Talks* Gilad Ben-Shach (IBM) - Intro to Commercial Partner Ecosystem

Bob Coecke (Cambridge Quantum Computing)

William Simon (Zapata Computing)

Iordanis Kerenidis (QWare)

Andre Carvalho (Q-CTRL)

**12:45pm** **Lunch Break (45min) w/ Cooking Demonstration**

*Talks + Panel* **Abstraction Without Trivialization: The Path to Practical Development**

**1:30pm** Blake Johnson (IBM)

**1:45pm** **New Developments in Qiskit Applications Modules**

Stefan Woerner (IBM)

Panos Barkoutsos (IBM) + Dimitar Trenev (ExxonMobil)

Christa Zoufal (IBM)

**2:05pm** **Enabling the Enterprise Developer**

*Panel* Sebastian Hassinger (IBM - moderator)

William Hurley (Strangeworks)

Carl Dukatz (Accenture)

David Maziotti (University of Chicago)

Larry Grace (Amgen)

Will Zeng (Goldman Sachs)

**2:35pm** **Bridge to Quantum Computation: QRNG, HPC, QSC**

*Series of Talks* Chris Schnabel (IBM) - Intro

Florian Curchod (Cambridge Quantum Computing)

Jessie Yu (IBM)

Seetharami Seelam (IBM)

Michael Osborne (IBM)

**3:20pm** **END of Day2 scheduled program**

*On-Demand* On-demand content available

# IBM Quantum Summit 2020

Thursday - September 17, 2020

## Day 3: Science and Education

- Eastern Time** MC: Abe Asfaw (IBM)
- 9:30am** **Welcome from IBM**  
*Talk* Anthony Annunziata (IBM)
- 9:45am** **NSF's Historic Leadership in Quantum Science and Quantum Workforce Development**  
*Interview* France A. Cordova (Former NSF Director) with Scott Crowder (IBM)
- 10:05am** **Educating and Enabling A Diverse Quantum Workforce**  
Panel Discussion - Part I  
*Panel* Olivia Lanes (IBM - moderator)  
 Marina Radulaski (University of California - Davis)  
 Sophia Economou (Virginia Tech)  
 Rod van Meter (Keio University)  
 Hakan Tureci (Princeton University)
- 10:35am** Panel Discussion - Part II  
*Panel* Kayla Lee (IBM - moderator)  
 Thomas Searles (Howard University)  
 Serena Eley (Colorado School of Mines)  
 Christopher Gutiérrez (UCLA)  
 Clarice Aiello (UCLA)

### 11:05am Coffee Break

- 11:15am** **Talks on Research and Education**  
*Series of Talks* Alberto Di Meglio (CERN)  
 Barry Dwolatzky (Wits University)  
 Jelena Vuckovic (Stanford University)  
 Fred Chong (University of Chicago)  
 Aram Harrow (MIT)  
 Patrick Dreher (NC State)  
 Sergey Bravyi (IBM)
- 12:25pm** **Expanding US Leadership in Quantum Information Science**  
*Keynote* Charles Tahan (White House Office of Science and Technology Policy)
- 12:40pm** **Advancing Science and Technology of Quantum**  
*Panel* Zaira Nazario (IBM - moderator)  
 Steve Girvin (Yale University)  
 David Awschalom (University of Chicago)  
 Oliver Ambacher (Fraunhofer Institutes)  
 Michael Cuthbert (National Quantum Computing Center, UK)

### 1:10pm Lunch Break (50min) w/ Musical Entertainment

- 2:00pm** **Talks on Research and Education**  
*Series of Talks* Frank Wilhem-Mauch (Saarland University)  
 Javad Shabani (NYU)  
 Mariya Vyushkova (Notre Dame University)  
 David Gosset (University of Waterloo)  
 Yonatan Cohen (Quantum Machines)  
 Lev Bishop (IBM)  
 Aida Todri-Sanial (University of Montpellier)
- 3:10pm** **Closing of formal portion of Quantum Summit**  
 Anthony Annunziata (IBM)
- 3:20pm** **END of Day3 scheduled program**  
*On-Demand* On-demand content available