

## GLOBAL QUANTUM PROGRAM

### QUANTUM COMPUTING + SENSING + COMMUNICATION

#### Program Dates

Daily sessions are held on **July 2 - 28** (weekdays) and **August 5 - 26** (Saturdays).

#### Time

10:30am - 1pm US ET. Convert to your time zone [here](#).

#### Modules

Two optional preparation modules are offered:

- **Basics of Quantum and Quantum Computing** (QWorld, QBronze)
- **Quantum Odyssey: a Game-based Introduction to Quantum Computing**

The Womanium Quantum Program 2023 consists of the following modules:

1. **Quantum Computing & Programming** (QWorld, QNickel)
2. **Quantum Key Distribution**
3. **Quantum Sensing**
4. **Quantum Computing Software** (with Industry Bootcamps)
5. **Quantum Computing Hardware** (with Virtual Lab Tours)
6. **Quantum Error Correction**
7. **Womanium Global Quantum Leadership Project**

#### Sponsors

**SandboxAQ, Terra Quantum, IonQ, Quantinuum, Maybell Quantum, NKT Photonics,  
Atlantic Quantum, Quantum Brilliance**

#### Content partners

Advanced Quantum Testbed, Atlantic Quantum, Atom Computing, CQTech, CU Boulder, D-Wave, Deloitte, eleQtron, Forschungszentrum Jülich, FieldLine, Google, IBM, Inflection, IonQ, IQM, Lawrence Berkeley National Laboratory, Maybell Quantum, MIT, MITRE, NASA, NIST, NNL, NKT Photonics, ORCA Computing, Oxford Quantum Circuits, Pasqal, Princeton University, qBraid, QMware AG, Quantinuum, Quantum Brilliance, Quarks Interactive, QuEra, Qunnect, QWorld, RWTH Aachen University, SandboxAQ, SEEQC, Strangeworks, Technical University of Denmark, Terra Quantum, University of Birmingham, University of New South Wales, Xanadu, Zurich Instruments

WEEK 1

10:30am - 1:30pm US ET. Convert to your time zone [here](#).

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Sunday, July 2      **Launch** by Womanium Team

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Monday, July 3      **Keynote** Today's Space Race: Quantum Computing  
*whurley, CEO Strangeworks*

**Keynote** Quantum Communication  
*Noel Goddard, CEO Qunnect*

**Workshop I-1**  
Quantum Key Distribution  
*Aeysha Khalique, QWorld*

**Workshop II-1**  
Quantum Algorithms & Programming (QNickel)  
*Jibran Rashid, QWorld*

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Tuesday, July 4      **Spotlight** Quantum Sensing: Atomic Gravimeters  
*Nicole Metje, University of Birmingham*

**Workshop I-2**  
Quantum Key Distribution  
*Aeysha Khalique, QWorld*

**Workshop II-2**  
Quantum Algorithms & Programming (QNickel)  
*Jibran Rashid, QWorld*

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Wednesday, July 5      **Spotlight** Quantum Sensing: Imaging the Brain  
*Svenja Knappe, CU Boulder & co-founder Fieldline*

**Workshop I-3**  
Quantum Key Distribution  
*Aeysha Khalique, QWorld*

**Workshop II-3**  
Quantum Algorithms & Programming (QNickel)  
*Jibran Rashid, QWorld*

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Thursday, July 6

**Keynote** Quantum Sensing: a Systems Engineering Approach  
*Bonnie Marlow, MITRE*

**Workshop I-4**

Quantum Key Distribution  
*Aeysha Khalique, QWorld*

**Workshop II-4**

Quantum Algorithms & Programming (QNickel)  
*Jibran Rashid, QWorld*

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Friday, July 7

**Keynote** Post-Quantum Cryptography  
*Angela Robinson, NIST*

**Workshop I-5**

Quantum Key Distribution  
*Aeysha Khalique, QWorld*

**Workshop II-5**

Quantum Algorithms & Programming (QNickel)  
*Jibran Rashid, QWorld*

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**WEEK 2**

10:30am - 1:30pm US ET. Convert to your time zone [here](#).

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Monday, July 10

**Keynote** Quantum Computing  
*David DiVincenzo, Jülich Research Center and RWTH Aachen*

**Hardware Lecture** Neutral-Atom Quantum Computing  
*Jeff Thompson, Princeton University*

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Tuesday, July 11

**Software Bootcamp** Introduction to Quantum Computing with  
Neutral Atoms  
*Pedro Lopes, QuEra*

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Wednesday, July 12

**Keynote** Quantum Entrepreneurship and Diversity  
*Ilana Wisby, CEO Oxford Quantum Circuits*

**Hardware Lecture** Superconducting Quantum Computing  
*Mollie Schwartz, MIT*

**Virtual Lab Tour** Superconducting Quantum Computing - IQM  
*Julia Lamprich, Stefan Seegerer, Tianyi Li; IQM*

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Thursday, July 13

**Spotlight** Terra Quantum  
*Kimberly Shyu, Terra Quantum*

**Software Bootcamp** Solving the Traveling Salesman Problem with QUBO Formulation - Terra Quantum & QMware  
*Margarita Veshchezerova, Terra Quantum*  
*Markus Buchberger, QMware*

Friday, July 14

**Hardware Lecture** Photonic Quantum Computing  
*Ulrik Lund Andersen, Technical University of Denmark*

**Virtual Lab Tour** Photonic Quantum Computing  
*Technical University of Denmark*

**Software Bootcamp** Circuit Optimization - qBraid  
*Kanav Setia, Ricky Young; qBraid*

**WEEK 3**

10:30am - 1:30pm US ET. Convert to your time zone [here](#).

Monday, July 17

**Hardware Bootcamp** Interfacing a Qubit, The Easy Way! - Zurich Instruments  
*Arash Fereidouni, Bruno Küng; Zurich Instruments*

**Virtual Lab Tour** Advanced Quantum Testbed & Zurich Instruments  
*Anastasiia Butko, Zahra Pedramrazi, Kasra Nowrouzi; Lawrence Berkeley National Lab*  
*Arash Fereidouni, Bruno Küng; Zurich Instruments*

**Keynote** Quantum Product Management  
*Catherine Vollgraff Heidweiller, Google*

Tuesday, July 18

**Hardware Lecture** Si-based Quantum Computing  
*Danielle Holmes, University of New South Wales (UNSW)*

**Keynote** Quantum Scalability, Climate and Entrepreneurship  
*John Levy, CEO SEEQC*

**Virtual Lab Tour** Superconducting Quantum Computing - SEEQC

Wednesday, July 19

**Spotlight** IonQ  
*Masako Yamada, IonQ*

**Hardware Panel** Quantum Computing Hardware Panel  
*Kristen Pudenz, Atom Computing*  
*Nicholas Bronn, IBM*

## &lt; WOMANIUM | QUANTUM &gt;

*Mana Norouzpour, D-Wave*  
*Bharath Kannan, Atlantic Quantum*

**Software Bootcamp** Quantum Machine Learning - Xanadu  
*Catalina Albornoz, Xanadu*

Thursday, July 20

**Hardware Lecture & Virtual Lab Tour** Quantum Annealing  
*Alexandra Koszegi, D-Wave*

**CAREER TRAINING: PITCH & RESUME**

Friday, July 21

**Virtual Lab Tour** Lasers - NKT Photonics

**Keynote** Quantum Communication, Sensing, and Computing for Space  
*Angela Hodge, NASA*

**WEEK 4**

10:30am - 1:30pm US ET. Convert to your time zone [here](#).

Monday, July 24

**Keynote** Quantum for Nuclear Applications  
*Brian McDermott, Naval Nuclear Laboratory*

**Virtual Lab Tour** Trapped-Ion Quantum Computing - IonQ  
*Marlene Kilpatrick, Wendy Casker, Rebecca Panzer; IonQ*

**Software Bootcamp** Improving quantum circuit performance with TKET on H-Series devices and other platforms, *Kathrin Spendier, Quantinuum*

Tuesday, July 25

**Hardware Lecture** Trapped-Ion Quantum Computing  
*Christof Wunderlich, eleQtron/University of Siegen*

**Virtual Lab Tour** Trapped-Ion Quantum Computing - Quantinuum  
*Kathrin Spendier, Quantinuum*

**Hardware Panel** Quantum Computing Hardware Panel  
*Caroline Figgat, Quantinuum*  
*Daria Gusenkova, IQM*  
*Pedro Lopes, QuEra*  
*Erik Eisenach, Quantum Brilliance*

Wednesday, July 26

**Quantum Applications** Health, Energy, Automotive, Finance, Aerospace, Defense and Intelligence

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Thursday, July 27	<b>Quantum Applications</b> Health, Energy, Automotive, Finance, Aerospace, Defense and Intelligence
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Friday, July 28	<b>CAREER FAIR</b>
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**AUGUST**

10:30am - 1pm US ET. Convert to your time zone [here](#).

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Saturday, Aug 5	<b>Keynote</b> Introduction to Quantum Error Correction
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	<b>Workshop III-1</b> Quantum Error Correction <i>Abdullah Khalid, QWorld</i>
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Saturday, Aug 12	<b>Workshop III-2</b> Quantum Error Correction <i>Abdullah Khalid, QWorld</i>
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Saturday, Aug 19	<b>Workshop III-3</b> Quantum Error Correction <i>Abdullah Khalid, QWorld</i>
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Saturday, Aug 26	<b>Workshop III-4</b> Quantum Error Correction <i>Abdullah Khalid, QWorld</i>
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