

# QEC Summer School Schedule

As of July 4 subject to change.

## Week 1

QEC Foundations  
Bosonic Code Foundations  
Programming QEC Decoders

Time	Activity	Location/Room	Mon 4	Tue 5	Wed 6	Thr 7	Fri 8	Sat 9	Sun 10
7:00AM - 8:55AM	Breakfast	Biddle Mansion - Winter Palace/West Terrace	Students Arrive	Breakfast					Study/Off Breakfast: 7:00AM - 9:30AM Lunch: 12:00PM - 1:30PM Dinner: 6:00PM - 9:00PM
9:00AM - 10:30AM	Lecture I	New York		Meet @ 8:45AM for First Day Logistics QEC Foundations Steve Flammia, AWS	Programming QEC Decoders James Wootton, IBM Quantum	Bosonic Code Foundations Shruti Puri, Yale University Arne Grimsmo, AWS	Bosonic Code Foundations Shruti Puri, Yale University Arne Grimsmo, AWS	QEC Foundations Steve Flammia, AWS	
10:30AM - 11:00AM	Morning Tea Break	Atrium Lobby		Morning Tea Break					
11:00AM - 12:30PM	Lecture II	New York		Bosonic Code Foundations Shruti Puri, Yale University Arne Grimsmo, AWS	QEC Foundations Steve Flammia, AWS	QEC Foundations Steve Flammia, AWS	Programming QEC Decoders James Wootton, IBM Quantum	Bosonic Code Foundations Shruti Puri, Yale University Arne Grimsmo, AWS	
12:30PM - 1:25PM	Lunch	Biddle Mansion - Winter Palace/West Terrace		Lunch					
1:30PM - 2:00PM	Q&A Sessions	Sunnyside		Q&A Session QEC Foundations Steve Flammia, AWS	Q&A Session Programming QEC Decoders James Wootton, IBM Quantum	Q&A Session Bosonic Code Foundations Shruti Puri, Yale University Arne Grimsmo, AWS	Q&A Session Bosonic Code Foundations Shruti Puri, Yale University Arne Grimsmo, AWS	Q&A Session QEC Foundations Steve Flammia, AWS	
2:00PM - 2:30PM		Lyndhurst		Q&A Session Bosonic Code Foundations Shruti Puri, Yale University Arne Grimsmo, AWS	Q&A Session QEC Foundations Steve Flammia, AWS	Q&A Session QEC Foundations Steve Flammia, AWS	Q&A Session Programming QEC Decoders James Wootton, IBM Quantum	Q&A Session Bosonic Code Foundations Shruti Puri, Yale University Arne Grimsmo, AWS	
2:30PM - 4:30PM	Unstructured Time	N/A		Unstructured Time/ Office Hours with Admin Team for on-site support	Unstructured Time				
4:30PM - 5:00PM	Open Problems, Student Talks, Crazy Ideas	New York		Unstructured Time	Unstructured Time	Open Problems - Part I QEC Foundations Steve Flammia, AWS	Crazy Ideas Session IDA Rules Drew Vandeth, IBM Quantum	Open Problems - Part II Bosonic Code Foundations Shruti Puri, Yale University Arne Grimsmo, AWS	
5:00PM - 5:30PM					Introduction to QEC Framework Drew Vandeth, IBM Quantum	Open Problems - Part I Bosonic Code Foundations Shruti Puri, Yale University Arne Grimsmo, AWS		Open Problems - Part II QEC Foundations Steve Flammia, AWS	
5:30PM - 6:00PM	Unstructured Time	N/A		Unstructured Time					
6:00PM - 6:55PM	Dinner	Biddle Mansion - Winter Palace/West Terrace	4th of July Event @ Duke Terrace	Opening Dinner @ Mary Duke Ballroom  Opening Remarks Zaira Nazario, IBM Research	Dinner	Social Event: Women in Quantum Social & Dinner  @ West Terrace	Dinner		
7:00PM - 8:00PM	Guest Lectures/Social Time	New York		Keynote Speaker, Daniel Gottesman, UMD Mary Duke Ballroom	Guest Lecture Natalie Brown, Quantinuum		Guest Lecture Liang Jiang, The University of Chicago	Unstructured Time	
8:00PM - 9:00PM	Social	Atrium Lobby		Speaker Social	Speaker Social	Speaker Social			

# QEC Summer School Schedule

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## Week 2

Fault Tolerance - Logistical Gates  
Experimental QEC - Bosonic Codes  
Programming QEC Decoders

Week 2											
Fault Tolerance - Logistical Gates Experimental QEC - Bosonic Codes Programming QEC Decoders											
Time	Activity	Location/Room	Mon	Tue	Wed	Thr	Fri	Sat	Sun		
			11	12	13	14	15	16	17		
7:00AM - 8:55AM	Breakfast	Winter Palace/West Terrace	Breakfast					Breakfast: 7:00AM - 9:30AM Lunch: 11:30AM - 12:30PM  Hudson River Cruise : 1:00PM - 4:00PM  Dinner: 6:00PM - 9:00PM	Study/Off  Breakfast: 7:00AM - 9:30AM Lunch: 12:00PM - 1:30PM Dinner: 6:00PM - 9:00PM		
9:00AM - 10:30AM	Lecture I	New York	Fault Tolerance - Logical Gates Ben Brown, IBM Quantum Daniel Litinski, PsiQuantum	Programming QEC Decoders James Wootton, IBM Quantum	Experimental QEC - Bosonic Codes Alec Eickbusch & Volodymyr Sivak, Yale University	Experimental QEC - Bosonic Codes Alec Eickbusch, Yale University Volodymyr Sivak, Yale University	Fault Tolerance - Logical Gates Ben Brown, IBM Quantum Daniel Litinski, PsiQuantum				
10:30AM - 11:00AM	Morning Tea Break	Atrium Lobby	Morning Tea Break								
11:00AM - 12:30PM	Lecture II	New York	Experimental QEC - Bosonic Codes Michel Devoret, Alec Eickbusch, & Volodymyr Sivak, Yale University	Fault Tolerance - Logical Gates Ben Brown, IBM Quantum Daniel Litinski, PsiQuantum	Fault Tolerance - Logical Gates Ben Brown, IBM Quantum Daniel Litinski, PsiQuantum	Programming QEC Decoders James Wootton, IBM Quantum	Experimental QEC - Bosonic Codes Alec Eickbusch & Volodymyr Sivak, Yale University				
12:30PM - 1:25PM	Lunch	Winter Palace/West Terrace	Lunch								
1:30PM - 2:00PM	Q&A Sessions	Sunnyside	Q&A Session Fault Tolerance - Logical Gates Ben Brown, IBM Quantum Daniel Litinski, PsiQuantum	Q&A Session Programming QEC Decoders James Wootton, IBM Quantum	Q&A Session Experimental QEC - Bosonic Codes Alec Eickbusch & Volodymyr Sivak, Yale University	Q&A Session Experimental QEC - Bosonic Codes Alec Eickbusch & Volodymyr Sivak, Yale University	Q&A Session Fault Tolerance - Logical Gates Ben Brown, IBM Quantum Daniel Litinski, PsiQuantum				
2:00PM - 2:30PM		Lyndhurst	Q&A Session Experimental QEC - Bosonic Codes Michel Devoret, Alec Eickbusch, & Volodymyr Sivak, Yale	Q&A Session Fault Tolerance - Logical Gates Ben Brown, IBM Quantum Daniel Litinski, PsiQuantum	Q&A Session Fault Tolerance - Logical Gates Ben Brown, IBM Quantum Daniel Litinski, PsiQuantum	Q&A Session Programming QEC Decoders James Wootton, IBM Quantum	Q&A Session Experimental QEC - Bosonic Codes Alec Eickbusch & Volodymyr Sivak, Yale University				
2:30PM - 4:30PM	Unstructured Time	N/A	Unstructured Time								
4:30PM - 5:00PM	Open Problems, Student Talks, Crazy Ideas	New York	Student Talks	Student Talks	Open Problems - Part I Experimental QEC - Bosonic Codes Alec Eickbusch & Volodymyr Sivak, Yale University	Crazy Ideas Session	Open Problems - Part II Fault Tolerance - Logical Gates Ben Brown, IBM Quantum Daniel Litinski, PsiQuantum				
5:00PM - 5:30PM					Open Problems - Part I Fault Tolerance - Logical Gates Ben Brown, IBM Quantum Daniel Litinski, PsiQuantum		Open Problems - Part II Experimental QEC - Bosonic Codes Alec Eickbusch & Volodymyr Sivak, Yale University				
5:30PM - 6:00PM	Unstructured Time	N/A	Unstructured Time								
6:00PM - 6:55PM	Dinner	Winter Palace/West Terrace	Dinner								
7:00PM - 8:00PM	Guest Lectures/Social Time	New York	Guest Lecture Chen Wang, UMass Amherst	Unstructured Time	Unstructured Time	Unstructured Time	Guest Lecture Guanyu Zhu, IBM Quantum				
8:00PM - 9:00PM	Social	Atrium Lobby	Speaker Social				Speaker Social				

# QEC Summer School Schedule

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## Week 3

QEC Decoding  
Experimental QEC - Trapped Ions  
Programming QEC Simulations

Time	Activity	Location/Room	Mon 18	Tue 19	Wed 20	Thr 21	Fri 22	Sat 23	Sun 24
7:00AM - 8:55AM	Breakfast	Winter Palace/West Terrace	Breakfast					Social Event TBA  Breakfast: 7:00AM - 9:30AM Lunch & Dinner: TBA	Study/Off  Breakfast: 7:00AM - 9:30AM Lunch: 12:00PM - 1:30PM Dinner: 6:00PM - 9:00PM
9:00AM - 10:30AM	Lecture I	New York	QEC Decoding Christopher Chubb, ETH Zurich Earl Campbell, Riverlane & University of Sheffield	Programming QEC Simulations Andrew Cross, IBM Quantum	Experimental QEC - Trapped Ions Ken Brown, Duke University Ciaran Ryan-Anderson, Quantinuum	Experimental QEC - Trapped Ions Ken Brown, Duke University Ciaran Ryan-Anderson, Quantinuum	QEC Decoding Christopher Chubb, ETH Zurich Earl Campbell, Riverlane & University of Sheffield		
10:30AM - 11:00AM	Morning Tea Break	Atrium Lobby	Morning Tea Break						
11:00AM - 12:30PM	Lecture II	New York	Experimental QEC - Trapped Ions Ken Brown, Duke University Ciaran Ryan-Anderson, Quantinuum	QEC Decoding Christopher Chubb, ETH Zurich Earl Campbell, Riverlane & University of Sheffield	QEC Decoding Christopher Chubb, ETH Zurich Earl Campbell, Riverlane & University of Sheffield	Programming QEC Simulations Andrew Cross, IBM Quantum	Experimental QEC - Trapped Ions Ken Brown, Duke University Ciaran Ryan-Anderson, Quantinuum		
12:30PM - 1:25PM	Lunch	Winter Palace/West Terrace	Lunch						
1:30PM - 2:00PM	Q&A Sessions	Sunnyside	Q&A Session QEC Decoding Christopher Chubb, ETH Zurich Earl Campbell, Riverlane & University of Sheffield	Q&A Session Programming QEC Simulations Andrew Cross, IBM Quantum	Q&A Session Experimental QEC - Trapped Ions Ken Brown, Duke University Ciaran Ryan-Anderson, Quantinuum	Q&A Session Experimental QEC - Trapped Ions Ken Brown, Duke University Ciaran Ryan-Anderson, Quantinuum	Q&A Session QEC Decoding Christopher Chubb, ETH Zurich Earl Campbell, Riverlane & University of Sheffield		
2:00PM - 2:30PM		Lyndhurst	Q&A Session Experimental QEC - Trapped Ions Ken Brown, Duke University Ciaran Ryan-Anderson, Quantinuum	Q&A Session QEC Decoding Christopher Chubb, ETH Zurich Earl Campbell, Riverlane & University of Sheffield	Q&A Session QEC Decoding Christopher Chubb, ETH Zurich Earl Campbell, Riverlane & University of Sheffield	Q&A Session Programming QEC Simulations Andrew Cross, IBM Quantum	Q&A Session Experimental QEC - Trapped Ions Ken Brown, Duke University Ciaran Ryan-Anderson, Quantinuum		
2:30PM - 4:30PM	Unstructured Time	N/A	Unstructured Time						
4:30PM - 5:00PM	Open Problems, Student Talks, Crazy Ideas	New York	Student Talks	Student Talks	Open Problems - Part I Experimental QEC - Trapped Ions Ken Brown, Duke University Ciaran Ryan-Anderson, Quantinuum	Crazy Ideas Session	Open Problems - Part II QEC Decoding Christopher Chubb, ETH Zurich Earl Campbell, Riverlane & University of Sheffield		
5:00PM - 5:30PM					Open Problems - Part I QEC Decoding Christopher Chubb, ETH Zurich Earl Campbell, Riverlane & University of Sheffield		Open Problems - Part II Experimental QEC - Trapped Ions Ken Brown, Duke University Ciaran Ryan-Anderson, Quantinuum		
5:30PM - 6:00PM	Unstructured Time	N/A	Unstructured Time						
6:00PM - 6:55PM	Dinner	Winter Palace/West Terrace	Dinner			Social Event: Diversity Panel @ Mary Duke Ballroom		Dinner	
7:00PM - 8:00PM	Guest Lectures/Social Time	New York	Guest Lecture Aleksander Kubica, AWS	Unstructured Time	Guest Lecture Michael Vasmer, Perimeter Institute	Dinner @ Mary Duke Ballroom		Guest Lecture Leo DiCarlo, TU Delft	
8:00PM - 9:00PM	Social	Atrium Lobby	Speaker Social		Speaker Social	Unstructured Time		Speaker Social	

# QEC Summer School Schedule

As of July 4 subject to change.

## Week 4

LDPC Codes  
Experimental QEC - Superconducting Qubits  
Programming QEC Simulations

Time	Activity	Location/Room	Mon 25	Tue 26	Wed 27	Thr 28	Fri 29	Sat 30	Sun 31
7:00AM - 8:55AM	Breakfast	Winter Palace/West Terrace	Breakfast			Breakfast <b>Lecture begins at 8:30AM</b> Experimental QEC - Superconducting Qubits Maika Takita, IBM Quantum Antonio Córcoles, IBM Quantum Andreas Wallraff, ETH Zurich	Breakfast	Social Event TBA Breakfast: 7:00AM - 9:30AM Lunch & Dinner: TBA	Students Depart Breakfast: 7:00AM - 9:30AM
9:00AM - 10:30AM	Lecture I	New York	LDPC Codes Nikolas Breuckmann, UCL Nicolas Delfosse, Microsoft	Programming QEC Simulations Andrew Cross, IBM Quantum	Experimental QEC - Superconducting Qubits Maika Takita & Antonio Córcoles, IBM Quantum Andreas Wallraff, ETH Zurich	LDPC Codes Nikolas Breuckmann, UCL Nicolas Delfosse, Microsoft			
10:30AM - 11:00AM	Morning Tea Break	Atrium Lobby	Morning Tea Break			<b>Lecture begins at 10:00AM</b> Programming QEC Simulations Andrew Cross, IBM Quantum	Morning Tea Break		
11:00AM - 12:30PM	Lecture II	New York	Experimental QEC - Superconducting Qubits Maika Takita & Antonio Córcoles, IBM Quantum Andreas Wallraff, ETH Zurich	LDPC Codes Nikolas Breuckmann, UCL Nicolas Delfosse, Microsoft	LDPC Codes Nikolas Breuckmann, UCL Nicolas Delfosse, Microsoft	<b>Bus leaves at 11:45AM</b>  Social Event: IBM Research BBQ & Lab Tour at IBM Yorktown	Experimental QEC - Superconducting Qubits Maika Takita & Antonio Córcoles, IBM Quantum Andreas Wallraff, ETH Zurich		
12:30PM - 1:25PM	Lunch	Winter Palace/West Terrace	Lunch			Social Event: IBM Research BBQ & Lab Tour at IBM Yorktown	Lunch		
1:30PM - 2:00PM	Q&A Sessions	Sunnyside	Q&A Session LDPC Codes Nikolas Breuckmann, UCL Nicolas Delfosse, Microsoft	Q&A Session Programming QEC Simulations Andrew Cross, IBM Quantum	Q&A Session Experimental QEC - Superconducting Qubits Maika Takita & Antonio Córcoles, IBM Quantum Andreas Wallraff, ETH Zurich		Q&A Session LDPC Codes Nikolas Breuckmann, UCL Nicolas Delfosse, Microsoft		
2:00PM - 2:30PM		Lyndhurst	Q&A Session Experimental QEC - Superconducting Qubits Maika Takita & Antonio Córcoles, IBM Quantum Andreas Wallraff, ETH Zurich	Q&A Session LDPC Codes Nikolas Breuckmann, UCL Nicolas Delfosse, Microsoft	Q&A Session LDPC Codes Nikolas Breuckmann, UCL Nicolas Delfosse, Microsoft		Q&A Session Experimental QEC - Superconducting Qubits Maika Takita & Antonio Córcoles, IBM Quantum Andreas Wallraff, ETH Zurich		
2:30PM - 4:30PM	Unstructured Time	N/A	Unstructured Time				Unstructured Time		
4:30PM - 5:00PM	Open Problems, Student Talks, Crazy Ideas	New York	Student Talks	Student Talks	Open Problems - Part I Experimental QEC - Superconducting Qubits Maika Takita & Antonio Córcoles, IBM Quantum Andreas Wallraff, ETH Zurich		Open Problems - Part II LDPC Codes Nikolas Breuckmann, UCL Nicolas Delfosse, Microsoft		
5:00PM - 5:30PM					Open Problems - Part I LDPC Codes Nikolas Breuckmann, UCL Nicolas Delfosse, Microsoft	Open Problems - Part II Experimental QEC - Superconducting Qubits Maika Takita & Antonio Córcoles, IBM Quantum Andreas Wallraff, ETH Zurich			
5:30PM - 6:00PM	Unstructured Time	N/A	Unstructured Time						
6:00PM - 6:55PM	Dinner	Winter Palace/West Terrace	Dinner					Closing Dinner & Keynote Speaker Sergey Bravyi, IBM Quantum @ Carriage House	
7:00PM - 8:00PM	Guest Lectures/Social Time	New York	Guest Lecture Anirudh Krishna, Stanford University	Unstructured Time	Guest Lecture, Ted Yoder, IBM Quantum	Unstructured Time	Social Event TBA		
8:00PM - 9:00PM	Social	Atrium Lobby	Speaker Social		Speaker Social				