

# KITP Conference: Noisy Intermediate-Scale Quantum Systems: Advances and Applications

(Sep 12-15, 2022)

Coordinators: Aram Harrow, Liang Jiang, and Vedika Khemani

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## Monday, Sep 12, 2022

8:50am Lars Bildsten (KITP)	<a href="#">Welcome[Video][CC]</a>
9:00am John Preskill (Caltech)	<a href="#">Making Predictions in a Quantum World[Slides][Video][CC]</a>
9:45am John Martinis (UCSB)	<a href="#">The importance of N in NISQ[Slides][Video][CC]</a>
10:30am	<b>Coffee Break</b>
11:00am Bill Fefferman (U. Chicago)	<a href="#">The Power of Random Quantum Circuits[Slides][Video][CC]</a>
11:45am Ehud Altman (Berkeley)	<a href="#">Observable quantum information transitions with and without measurements[Slides][Video][CC]</a>
12:30pm	<b>Lunch Break</b>
2:00pm Michael Gullans (NIST/Maryland)	<a href="#">Entanglement Dynamics in Monitored Quantum Processors[Slides][Video][CC]</a>
2:45pm Zlatko Mineev (IBM)	<a href="#">To learn and cancel quantum noise: Probabilistic error cancellation with sparse Pauli-Lindblad models on noisy quantum processors[Slides][Video][CC]</a>
3:30pm	<b>Coffee Break</b>
4:00pm Sebastian Diehl (Univ. of Cologne)	<a href="#">Revealing Measurement-Induced Phase Transitions by Pre-Selection[Slides][Video][CC]</a>
4:45pm Yaodong Li (Stanford)	<a href="#">Cross Entropy Benchmark for Measurement-Induced Phase Transitions[Slides][Video][CC]</a>
5:30pm	<b>SHUTTLE BACK TO BWSCI</b>

## Tuesday, Sep 13, 2022

9:00am Victor Albert (NIST/Maryland)	<a href="#">Overview of Quantum Error Correction[Video][CC]</a>
10:00am Eugene Tang (MIT)	<a href="#">Recent developments in asymptotically good quantum LDPC codes[Slides][Video][CC]</a>
10:45am	<b>Coffee Break</b>
11:30am Chinmay Nirkhe (IBM)	<a href="#">NLTS Hamiltonians from good quantum codes[Slides][Video][CC]</a>
12:30pm	<b>Lunch Break</b>
2:00pm Crystal Noel (Duke)	<a href="#">Quantum Computing with Trapped Ions[Video][CC]</a>
2:45pm Ben Lev (Stanford)	<a href="#">Enhancing Associative Memory Recall and Storage Capacity Using Confocal Cavity QED[Video][CC]</a>
3:30pm	<b>Coffee Break</b>
4:00pm Peter Zoller (Univ. Innsbruck)	<a href="#">Learning Entanglement in Quantum Simulation[Video][CC]</a>
4:45pm Romain Vasseur (UMass Amherst)	<a href="#">Learning global charges from local measurements[Slides][Video][CC]</a>
5:30pm	<b>Cocktail Reception</b>
6:00pm	<b>Dinner</b>
8:00pm	<b>SHUTTLE BACK TO BWSCI</b>

## Wednesday, Sep 14, 2022

9:00am Zhengang Wang (UCSB)	<a href="#">Floquet codes and symmetries of topological order[Slides][Video][CC]</a>
9:45am Alex Kubica (Amazon)	<a href="#">Single shot quantum error correction[Slides][Video][CC]</a>

10:30am

**Coffee Break**

11:00am Ben Brown (IBM)

[Anyon condensation and the color code](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

11:45am Dominic Williamson (U. Sydney)

[Spacetime topological defect networks and floquet codes](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

12:30pm

**Lunch Break**

2:00pm Lorenzo Piroli (ENS Paris)

[Quantum Circuits Assisted by LOCC: Transformations and Phases of Matter](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

2:45pm Timothy Hsieh (Perimeter Inst.)

[Probing sign structure using measurement-induced entanglement](#)[\[Video\]](#)[\[CC\]](#)

3:30pm

**Coffee break**

4:00pm Manuel Endres (Caltech)

[Probing Quantum Many Body Dynamics with Tweezer Arrays](#)[\[Video\]](#)[\[CC\]](#)

4:45pm Sarang Gopalakrishnan (Princeton)

[Signatures of Long-Lived Quasiparticles in Nonlinear Response and Quantum Gas Microscopy](#)[\[Video\]](#)[\[CC\]](#)

5:30pm

**Cocktail Reception**

6:00pm

**Dinner**

**Thursday, Sep 15, 2022**

9:00am Mikhael Lukin (Harvard)

[Exploring Entangled Quantum Matter with Programmable Atom Arrays](#)[\[Video\]](#)[\[CC\]](#)

9:45am Giulia Semeghini (Harvard)

[Probing topological phases with Rydberg atom arrays](#)[\[Video\]](#)[\[CC\]](#)

10:30am

**Coffee Break**

11:00am Xiaoliang Qi (Stanford)

[Spacetime mutual information](#)[\[Video\]](#)[\[CC\]](#)

11:45am Drew Potter (UBC)

[Qubit-efficient simulation with quantum tensor networks](#)[\[Video\]](#)[\[CC\]](#)

12:30pm

**Lunch Break**

2:00pm Bruno Bertini (Nottingham Univ.)

[Negativity and Mutual Information after a Quench: Exact Link from Space-Time Duality](#)[\[Video\]](#)[\[CC\]](#)

2:45pm Kevin Satzinger (Google)

[Suppressing Quantum Errors by Scaling a Surface Code Logical Qubit](#)[\[Video\]](#)[\[CC\]](#)

3:30pm

**Coffee Break**

4:00pm Quntao Zhuang (USC)

[Distributed quantum sensing with entangled sensor networks](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

4:45pm **CONFERENCE END SHUTTLE TO BWSCI \*Also available to SB Airport and SB Airbus, Goleta location.(See Registration Desk BEFORE THURSDAY to sign up.)**