

2025 Joint Review Meeting for the AFOSR Quantum Information Sciences & Atomic and Molecular Physics Portfolios

Dr. Grace Metcalfe | June 3-6, 2025 | Arlington, VA

Basic Research Innovation Collaboration Center (BRICC)
4100 N Fairfax Drive, Suite 450 | Arlington, VA 22203

Agenda Day 1 | Tuesday, June 3, 2025

Time	Topic	Speaker
8:30-9:00	CHECK IN / SIGN IN	
9:00-9:15	Welcome and Introduction	Grace Metcalfe and Boyan Tabakov, AFOSR
9:15-9:55	Quantum Computing - Real-time feedback for Rydberg Atom Arrays	Jacob Covey, University of Illinois Champaign (YIP)
9:55-10:15	TBD	NDSEG
10:15-10:45	BREAK	
10:45-11:25	Programmable Quantum Spin Dynamics with trapped Atoms coupled to a Nanophotonic Microring Resonator	Chen-Lung Hung, Purdue University
11:25-12:05	Engineering Pathways to State Preparation in Quantum Systems	Anatoli Polkovnikov, Boston University
12:05-13:35	LUNCH	
13:35-14:15	Measurement of Entanglement by Quantum Interferometry	Mayukh Lahiri, Oklahoma State University
14:15-15:05	MURI: Towards Robust Scalable Quantum Random Access Memories	Liang Jiang, University of Chicago (Team)
15:05-15:35	BREAK	
15:35-16:25	Ultra low-overhead Photonic Quantum Computation using a Squeezing-amplified weak cross-Kerr Modulation	Christian Arenz, Arizona State University (Team)
16:25-16:40	END OF DAY WRAP-UP	

Agenda Day 2 Wednesday, June 4, 2025		
Time	Topic	Speaker
8:30-9:00	CHECK IN / SIGN IN	
9:00-9:40	Single Phonon Quantum Acoustics	Jack Harris
9:40-10:20	BE NON LINEAR: Bosonic Encodings in NOise-resilient circuits with strong Non-LINEARity	Machiel Blok, University of Rochester (YIP)
10:20-10:50	BREAK	
10:50-11:30	Quantum Computing- Encoding Bosonic Qubits in Long-Lived Phonons	Mohammad Mirhosseini, Caltech (YIP)
11:30-12:10	Suppressing Quasiparticles in Superconducting Qubits	Eli Levenson-Falk, University of Southern California
12:10-13:40	LUNCH	
13:40-14:30	CFIRE: Unveiling and Controlling Quantum Point defects in Oxides	Kai-Mei Fu, University of Washington (Team)
14:30-15:00	CFIRE: Design and Control of Atomic Defects in Group II-Oxide Materials	Edo Waks, University of Maryland (Team)
15:00-15:50	BREAK	
15:50-16:30	New Frontiers for Quantum Dynamics	Rahul Nandkishore, University of Colorado
16:30-16:40	END OF DAY WRAP-UP	

Agenda Day 3 Thursday, June 5, 2025		
Time	Topic	Speaker
8:30-8:45	CHECK IN / SIGN IN	
8:45-9:25	Exploring Many-body Quantum Chemistry with Molecular Bose-Einstein Condensates	Cheng Chin, University of Chicago
9:25-10:05	Quantum Control and Precision Measurement of Molecular Vibrational States	Scott Diddams, University of Colorado
10:05-10:35	BREAK	
10:35-11:25	MURI: New Approaches to Quantum Control with Individual Molecule Sensitivity	Kang-Kuen Ni, Harvard University (Team)

11:25-12:05	Theoretical Investigations of Ionization Processes in an Ultracold Quantum Rydberg Gas	Essaid Zerrad, Delaware State University
12:05-13:35	LUNCH	
13:35-14:15	Quantum Science with Hybrid Magnetic Lanthanide Molecules for Quantum Simulations and Precision Measurements	Svetlana Kotochigova, Temple University
14:15-14:55	Stability of Ultracold Polyatomic Molecules	Jesus Perez Rios, Stony Brook University
14:55-15:25	BREAK	
15:25-16:05	Coherent Control of Cold and Ultracold Bimolecular Reactions	Paul Brumer, University of Toronto
16:05-16:45	Isomer Identification at the Single-Molecule Level	Heather Lewandowski, University of Colorado
16:45-16:55	END OF DAY WRAP-UP	

Agenda Day 4 Friday, June 6, 2025		
Time	Topic	Speaker
8:30-8:45	CHECK IN / SIGN IN	
8:45-9:25	Optical Control of Interactions in Fermi Gas Quantum Simulators	John Thomas, North Carolina State University
9:25-10:05	Nonlinear Acoustics in Ultracold Fermi Fluids	Nir Navon, Yale University
10:05-10:35	BREAK	
10:35-11:15	Many-body Dynamics of Quantum Gases in Time Varying Optical Lattices	Subhadeep Gupta, University of Washington
11:15-11:55	Solving Problems in Atomic Superfluid Rotation Using Cavity Optomechanics	Mishkatul Bhattachariya, Rochester Institute of Technology
11:55-13:25	LUNCH	
13:25-14:05	Innovations for the Construction and Detection of Quantum Phases with Neutral Atoms	Vito Scarola, Virginia Tech
14:05-14:25	TBD	NDSEG
14:25-14:55	BREAK	

14:55-15:35	Fast, Mid-Circuit Measurement for Quantum Science with Neutral Atoms	Adam Kaufman, University of Colorado (YIP)
15:35-16:15	Direct Test of the Quantum Statistics Theorem using Well-separated Indistinguishable Particles	Hartmut Haeffner, University of California Berkeley
16:15-16:25	END OF DAY WRAP-UP	
	End of Program Reviews	