

**SATURDAY PROGRAM**

**Morning Session [Room 151, Loomis Laboratory, 1110 W Green St., Urbana]**

8 am: check-in in the north lobby outside of 151 Loomis

**Session 1: New faculty -- welcome to the Midwest!** (Chair: Bryce Gadway)

- 8:30-8:55 Hannes Bernien, University of Chicago  
*Scalable quantum technologies with arrays of individually trapped atoms*
- 8:55-9:20 Timothy Kovachy, Northwestern University  
*Fundamental Physics Tests with Macroscopic Scale Atom Interferometers*
- 9:20-9:45 Shimon Kolkowitz, University of Wisconsin – Madison  
*What's the difference? - Harnessing correlated differential spectroscopy for precision and nanoscale metrology*

9:45 – 10:15 << Coffee + refreshments >>

**Session 2: Cold atoms & quantum simulation** (Chair: TBD)

- 10:15-10:45 Brian DeSalvo, University of Chicago [Chin group]  
*Fermion mediated interactions between bosonic atoms*
- 10:45-11:15 Sayan Choudhury, Purdue University [Zhou group]  
*Frustration induced quasi-many-body localization without disorder*
- 11:15-11:45 Chuan-Hsun Li, Purdue University [Chen group]  
*A Bose-Einstein Condensate on a Synthetic Hall Cylinder*
- 11:45-12:15 Samir Bali, Miami University of Ohio  
*Quest for cold atom ratchets to simulate bio molecular motors*

**12:15 – 1:45 – Lunch catered in Loomis Laboratory + posters in Loomis Lab  
[posters to be set up in lobby of Loomis Lab at this time]**

**Afternoon Session [Room 141, Loomis Laboratory, 1110 W Green St., Urbana]**

**Session 2: Molecules, Rydberg atoms, and exotic atoms** (Chair: TBD)

- 1:45-2:15 Trent Graham, University of Wisconsin – Madison [Saffman group]  
*Entangling atomic qubits with Rydberg interactions*
- 2:15-2:45 Patrick Stollenwerk, Northwestern University [Odom group]  
*Laser Control of the Rotational Degrees of Freedom of  $\text{SiO}^+$*
- 2:45-3:15 Michael Bishof, Argonne National Laboratory, Atom Trapping Group  
*Argonne's TRACER Center: expanding the applications of Atom Trap Trace Analysis*

3:15 – 3:45 << Coffee + refreshments >>

**Session 4: Atoms & light** (Chair: TBD)

- 3:45-4:15 Logan Clark, University of Chicago [Simon group]  
*Building strongly correlated materials out of light*
- 4:15-4:45 Brian Fields, Purdue University [Hung group]  
*Trapping single atoms on a nanophotonic circuit with configurable tweezer lattices*
- 4:45-5:15 Brian DeMarco, University of Illinois at Urbana-Champaign  
*Measurements of Phases in the Disordered Fermi-Hubbard Model*

5:15 – 6:15 << poster + refreshments in Loomis lobby >>

**Sponsors: Department of Physics, University of Illinois at Urbana-Champaign  
& [Vescent Photonics](#)**

**MCAW 2018** @ The University of Illinois at Urbana-Champaign

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**SUNDAY PROGRAM**

**Morning Session [Room 141, Loomis Laboratory, 1110 W Green St., Urbana]**

8 am: any necessary check-ins in the lobby outside of 141 Loomis

**Session 1: Optomechanics** (Chair: TBD)

8:15-8:45 Kero Lau, University of Chicago [Clerk group]

*Applications of optomechanics to quantum sensing and transduction*

8:45-9:15 Gaurav Bahl, University of Illinois at Urbana-Champaign, Mech. Sci. and Eng. Dept.

*Non-magnetic reconfigurable optical isolators for cold-atom microsystems*

9:15-9:45 Tongcang Li, Purdue University

*Levitated spin-optomechanics*

9:45-10:15 Andrew Geraci, Northwestern University

*Precision Sensing and Optomechanics with Optically Levitated Nanoparticles*

10:15 – 10:45 << Coffee + refreshments + posters >>

**Session 2: Optics, quantum optics, and quantum information** (Chair: TBD)

10:45-11:00 Kai Shinbrough, University of Illinois at Urbana-Champaign [Lorenz group]

*Modeling Photon-Phonon Pair Correlations for Quantum Applications*

11:00-11:15 Yujie Zhang, University of Illinois at Urbana-Champaign [Lorenz group]

*Tailored photon-pair generation in optical fiber through dual-pump spontaneous four-wave mixing*

11:15-11:45 Zach Buckholtz, University of Wisconsin – Madison [Yavuz group]

*Towards Electromagnetically Induced Transparency Using Magnetic-Dipole Transitions in Solids*

11:45-12:15 Liping Yang, Purdue University [Jacob group]

*Quantum Critical Detector: Amplifying Weak Signals Using First-Order Dynamical Quantum Phase Transitions*

12:15-12:45 Paul Kwiat, University of Illinois at Urbana-Champaign

*Advanced Quantum Communication — Where do we go from here?*

12:45 – 1:45 << poster + refreshments in Loomis lobby >>

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