

ALICIA J KOLLÁR
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EDUCATION

University of Maryland, Assistant Professor	2019-Present
Princeton University, Postdoctoral Scholar	2017-2019
Stanford University, Postdoctoral Scholar	2016-2017
Stanford University, Ph.D., Applied Physics.	2010-2016
Princeton University, B.A. Physics	2006-2010

RESEARCH INTERESTS

Quantum Simulation
Superconducting Circuits
Circuit and Cavity QED
Many-Body Physics with Photons
Open and Driven-Dissipative Systems

ADVISORS

Andrew Houck (Postdoc)
Benjamin Lev (Ph.D.)

COLLABORATORS

Alexey Gorshkov (JQI, NIST Gaithersberg)
Peter Sarnak (Princeton University, Mathematics)
Rivka Bekenstein (Harvard University, ITAMP)
Jonathan Keeling (University of Saint Andrews, Physics and Astronomy)

PUBLICATIONS

- 7) A. J. Kollár, M. Fitzpatrick, P. Sarnak, A.A. Houck, *Line-Graph Lattices: Euclidean and Non-Euclidean Flat Bands and Implementations in Circuit QED*, (in preparation).
- 6) A. J. Kollár, M. Fitzpatrick, A. A. Houck, *Hyperbolic Lattices in Circuit Quantum Electrodynamics*, arXiv:1802.09549.
- 5) V. D. Vaidya, Y. Guo, R. M. Kroeze, K. E. Ballantine, A. J. Kollár, J. Keeling, B. L. Lev, *Tunable-range, photon-mediated atomic interactions in multimode cavity QED*, *Physical Review X*, **8**, 011002 (2018), arXiv:1708.08933.

- 4) F. Yang, A. J. Kollár, S. F. Taylor, R. W. Turner, B. L. Lev, *A Scanning Quantum Cryogenic Atom Microscope*, *Physical Review Applied*, **7**, 034026 (2017), arXiv:1608.06922.
- 3) A. J. Kollár, A. T. Papageorge, K. Baumann, V. D. Vaidya, Y. Guo, J. Keeling, B. L. Lev, *Supermode-Density-Wave-Polariton Condensation*, *Nature Communications*, **8**, 14386 (2017), arXiv:1606.04127.
- 2) A. T. Papageorge, A. J. Kollár, B. L. Lev, *Coupling to Modes of a Near-Confocal Optical Resonator using a Digital Light Modulator*, *Optics Express*, **24**, 11447 (2016), arXiv:1603.06900.
- 1) A. J. Kollár, A. T. Papageorge, K. Baumann, M. A. Armen, B. L. Lev, *An adjustable-length cavity and Bose-Einstein condensate apparatus for multimode cavity QED*, *New Journal of Physics*, **17**, 043012 (2015), arXiv:1407.3842.

INVITED TALKS

- 11) *Band Engineering for Quantum Simulation in Circuit QED*
DAMOP, Milwaukee, May 2019
 - 10) *Hyperbolic and Flat-Band Lattices in Circuit QED*
The Dynamics of Quantum Information KITP, September 2018
 - 9) *Hyperbolic and Flat-Band Lattices in Circuit QED*
Gordon Research Conference on Quantum Science, Stonehill College, July 2018
 - 8) *Hyperbolic and Flat-Band Lattices in Circuit QED*
Dynamics and Dissipation in Quantum Simulation Workshop, Stanford University, July 2018
 - 7) *Quantum Simulation and Lattices in Circuit QED*
Workshop on 2D Quantum Metamaterials, NIST, Gaithersberg, April 2018
 - 6) *Self-organization in multimode cavity QED and magnetometry with 1D Bose-Einstein condensates*
Quantum Innovators, Waterloo Canada, October 2016
 - 5) *Supermode-density-wave-polariton condensation in a multimode cavity QED-BEC system*
Stanford Photonics Research Center Symposium, Stanford, September 2016
 - 4) *Supermode-polariton condensation in a multimode cavity QED-BEC system*
International Conference on Quantum Optics, Obergurgl Austria, February 2016
 - 3) *Beyond mean-field physics in multimode cavity QED*
POLATOM, Bad Honnef Germany, June, 2015
 - 2) *Exploring strongly correlated matter with multimode cavity QED*
Workshop on the Physics of Quantum Electronics, Snowbird Utah, January 2012
 - 1) *Exploring strongly correlated matter with multimode cavity QED*
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Stanford Photonics Research Center Symposium, Stanford, September 2011

SEMINARS

- 5) *Hyperbolic and Flat-Band Lattices in Circuit QED*
Condensed Matter Seminar, City University of New York, December 2018
 - 4) *Hyperbolic and Flat-Band Lattices in Circuit QED*
AMO/QI Seminar, University of California Berkeley, October 2018
 - 3) *Hyperbolic and Flat-Band Lattices in Circuit QED*
Seminar, University of Massachusetts, Amherst, March 2018
 - 2) *Hyperbolic and Flat-Band Lattices in Circuit QED*
JQI Seminar, University of Maryland, February 2018
 - 1) *Supermode-polariton condensation in a multimode cavity QED-BEC system*
Applied Physics Optics and Electronics Seminar, Stanford, January 2016
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