

Curriculum Vitae
Lior Cohen
Assistant Research Professor
University of Colorado Boulder

General Information:

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LinkedIn: <https://www.linkedin.com/in/lior-cohen-aa190599/>
Google scholar: <https://scholar.google.co.il/citations?hl=en&user=C480HFwAAAAJ>
ArXiv: http://arxiv.org/a/cohen_1_1

Work experience:

- 2021- Assistant Research Professor at University of Colorado Boulder. Working with Prof. Juliet Gopinath. Designing and building quantum-light sources. Working with vacuum and cryogenic systems for superconducting single-photon detectors.
- 2020-2021 Assistant Professor of Research at Louisiana State University. Working with Prof. Mark Wilde on quantum-limited sensors using tools of Quantum Information Theory. **Running Prof. Dowling group.**
- 2018-2020 Postdoctoral researcher at Louisiana State University in the Group of Prof. Jonathan Dowling. Teaching lectures in Quantum Optics. Working on; quantum sensing with discrete-variable and continuous-variable systems, quantum simulations of quantum-gravity theory, quantum networks, optomechanical entanglement.
- 2011-2018 Teaching assistant at Hebrew University of Jerusalem. At course Physics Lab II.
- 2010-2018 Researcher in Quantum Optics lab. Expertise in photon-number-resolving detectors, photon statistics, quantum error correction, precise measurements and remote sensing (rangefinders and LIDARs).
- 2007-2011 Security guard at the government quarter of east Jerusalem (During B.Sc. degree).

Education:

- 2013-2018 PhD student – physics, The Hebrew University of Jerusalem (HUJI), Topic: “Optical Measurements with a Photon Number Resolving Detector and their Sensitivity”, supervisor: Prof. Hagai Eisenberg.
- 2011-2013 M.Sc. student – physics, The Hebrew University of Jerusalem, Topic: “Photon Number Resolving Detectors and Experimental Super-Resolved

Phase Measurement at Shot-Noise Precision Application”, supervisor:
Prof. Hagai Eisenberg.

2008-2011 B.Sc. – Physics and Mathematics, The Hebrew University of Jerusalem,
with honors.

Military:

2003-2007 Full mandatory military service as a warrior at "Haruv" battalion.

Publications (published/ accepted):

34 publications, citations: 1641, h-index 20, i10-index 29 (Google scholar)

Divided to 4 categories; quantum sensing, quantum simulation and computing, quantum state preparation and detection, and detection of gravitational waves

Quantum sensing:

1. **L. Cohen**, D. Istrati, Y. Sher, Z. Brand, and H. S. Eisenberg, "Laser Ranging Bathymetry using a Photon-Number-Resolving Detector," *Remote Sensing* **14**, 2072 (2022).
2. S. L. Cuozzo, C. Gabaldon, P. Barge, H. Lee, **L. Cohen**, I. Novikova, E. Mikhailov, "Wave-Front Reconstruction via Single-Pixel Homodyne Imaging," *Opt. Express* **30**, 37938 (2022).
3. P. Barge, Z. Niu, S. L. Cuozzo, H. Lee, I. Novikova, E. E. Mikhailov, **L. Cohen**, "Weak thermal state quadrature noise imaging" *Opt. Express* **30**, 29401 (2022).
4. S. L. Cuozzo, P. Barge, N. Prajapati, N. Bhusal, H. Lee, **L. Cohen**, I. Novikova, E. E. Mikhailov, "Low-Light Shadow Imaging Using Quadrature-Noise Detection with a Camera," *Advanced Quantum Technologies* **5**, 2100147, (2022).
5. **Editors' Suggestion: L. Cohen**, and M. M. Wilde, "Towards Optimal Quantum Ranging —Hypothesis Testing for an Unknown Return Signal," *Phys. Rev. Applied* **17**, 044053, (2022).
6. G. Krueper, C. Yu, S. B. Libby, R. Mellors, **L. Cohen**, and J. T. Gopinath, "Realistic model of entanglement-enhanced sensing in optical fibers," *Opt. Express* **30**, 8652 (2022).
7. **L. Cohen**, E. S. Matekole, Y. Sher, D. Istrati, H. S. Eisenberg, and J. P. Dowling, "Thresholded Quantum LIDAR: Exploiting Photon-Number-Resolving Detection," *Phys. Rev. Lett.* **123**, 203601 (2019).
8. Y. Sher, **L. Cohen**, D. Istrati, and H. S. Eisenberg, "Low intensity LiDAR using compressed sensing and a photon number resolving detector," Emerging Digital Micromirror Device Based Systems and Applications X. Vol. 10546. International Society for Optics and Photonics, (2018).

9. **L. Cohen**, Y. Pilnyak, D. Istrati, A. Retzker, and H. S. Eisenberg, "Demonstration of a quantum error correction for enhanced sensitivity of photonic measurements," *Phys. Rev. A* **94**, 012324 (2016).
10. **L. Cohen**, L. Dovrat, D. Istrati, H. S. Eisenberg, "Experimental super resolved phase measurements at the shot noise limit," *Opt. Express* **22**, 11945 (2014).

Quantum simulation and computing:

11. **L. Cohen**, A. J. Brady, Z. Huang, H. Liu, D. Qu, J. P. Dowling, and M. Han, "Simulation of Loop Quantum Gravity--A Scalable Linear-Optical Approach," *Phys. Rev. Lett.* **126**, 020501 (2021).
12. D. Istrati, Y. Pilnyak, J. C. Loredó, C. Antón, N. Somaschi, P. Hilaire, H. Ollivier, M. Esmann, **L. Cohen**, L. Vidro, C. Millet, A. Lemaître, I. Sagnes, A. Harouri, L. Lanco, P. Senellart, H. S. Eisenberg, "Sequential generation of linear cluster states from a single photon emitter," *Nature Communication* **11**, 1 (2020).

Quantum state preparation and detection:

13. K. Y. Dixon, **L. Cohen**, N. Bhusal, N. Wipf, J. P. Dowling, and T. Corbitt, "Optomechanical entanglement at room temperature: a simulation study with realistic conditions," *Phys. Rev. A* **102**, 063518 (2020).
14. E. S. Matekole, S. L. Cuozzo, N. Prajapati, N. Bhusal, H. Lee, I. Novikova, E. E. Mikhailov, J. P. Dowling, **L. Cohen**, "Quantum-Limited Squeezed Light Detection with a Camera," *Phys. Rev. Lett.* **125**, 113602 (2020).
15. Y. Pilnyak, P. Zilber, **L. Cohen**, and H. S. Eisenberg, "Quantum tomography of photon states encoded in polarization and picosecond time bins," *Phys. Rev. A* **100**, 043826 (2019).
16. Y. Israel, **L. Cohen**, X.-B. Song, J. Joo, H. S. Eisenberg, and Y. Silberberg, "Entangled coherent states by mixing squeezed vacuum and coherent light," *Optica* **6**, 753 (2019).
17. **L. Cohen**, Y. Pilnyak, D. Istrati, N. M. Studer, J. P. Dowling, and H. S. Eisenberg, "Absolute self-calibration of single-photon and multiplexed photon-number-resolving detectors," *Phys. Rev. A* **98**, 013811 (2018).
18. L. Dovrat, M. Bakstein, D. Istrati, E. Megidish, A. Halevy, **L. Cohen**, and H. S. Eisenberg, "Direct observation of the degree of quantum correlations using photon-number resolving detectors," *Phys. Rev. A* **87**, 053813 (2013).

Detection of gravitational waves (Full author list in the link):

19. R. Abbott,... , **L. Cohen**,... , S. Shandera, "Search for Subsolar-Mass Binaries in the First Half of Advanced LIGO's and Advanced Virgo's Third Observing Run," [*Phys. Rev. Lett.* **129**, 061104](#) (2022).
20. R. Abbott,... , **L. Cohen**,... , J. Zweizig, "All-sky, all-frequency directional search for persistent gravitational waves from Advanced LIGO's and Advanced Virgo's first three observing runs," [*Phys. Rev. D* **105**, 122001](#) (2022).

21. R. Abbott,... , **L. Cohen**,... , J. Zweizig, "Search of the early O3 LIGO data for continuous gravitational waves from the Cassiopeia A and Vela Jr. supernova remnants," [*Phys. Rev. D* **105**, 082005](#) (2022).
22. R. Abbott,... , **L. Cohen**,... , J. Zweizig, "Search for gravitational waves associated with gamma-ray bursts detected by Fermi and Swift during the LIGO–Virgo run O3b," [*The Astrophysical Journal* **928**, 186](#) (2022).
23. R. Abbott,... , **L. Cohen**,... , J. Zweizig, "Constraints on dark photon dark matter using data from LIGO's and Virgo's third observing run," [*Phys. Rev. D* **105**, 063030](#) (2022).
24. R. Abbott,... , **L. Cohen**,... , J. Zweizig, "Search for intermediate-mass black hole binaries in the third observing run of Advanced LIGO and Advanced Virgo," [*Astronomy & Astrophysics* **659**, A84](#) (2022).
25. R. Abbott,... , **L. Cohen**,... , T. E. Strohmayer, "Search for continuous gravitational waves from 20 accreting millisecond X-ray pulsars in O3 LIGO data," [*Phys. Rev. D* **105**, 022002](#) (2022).
26. R. Abbott,... , **L. Cohen**,... , P. Weltevrede, "Narrowband Searches for Continuous and Long-duration Transient Gravitational Waves from Known Pulsars in the LIGO–Virgo Third Observing Run," [*The Astrophysical Journal* **932**, 133](#) (2022).
27. R. Abbott,... , **L. Cohen**,... , J. Zweizig, "Diving below the spin-down limit: Constraints on gravitational waves from the energetic young pulsar PSR J0537-6910," [*The Astrophysical Journal Letters* **915** L5](#) (2021).
28. R. Abbott,... , **L. Cohen**,... , J. Zweizig, "Constraints on cosmic strings using data from the third Advanced LIGO–Virgo observing run," [*Phys. Rev. Lett.* **126**, 241102](#) (2021).
29. R. Abbott,... , **L. Cohen**,... , J. Zweizig, "All-sky search for continuous gravitational waves from isolated neutron stars in the early O3 LIGO data," [*Phys. Rev. D* **104**, 082004](#) (2021).
30. R. Abbott,... , **L. Cohen**,... , J. Zweizig, "All-sky search for short gravitational-wave bursts in the third Advanced LIGO and Advanced Virgo run," [*Phys. Rev. D* **104**, 122004](#) (2021).
31. R. Abbott,... , **L. Cohen**,... , J. Zweizig, "Upper limits on the isotropic gravitational-wave background from Advanced LIGO and Advanced Virgo's third observing run," [*Phys. Rev. D* **104**, 022004](#) (2021).
32. R. Abbott,... , **L. Cohen**,... , J. Zweizig, "All-sky search in early O3 LIGO data for continuous gravitational-wave signals from unknown neutron stars in binary systems," [*Phys. Rev. D* **103**, 064017](#) (2021).
33. R. Abbott,... , **L. Cohen**,... , J. Zweizig, "Search for anisotropic gravitational-wave backgrounds using data from Advanced LIGO's and Advanced Virgo's first three observing runs," [*Phys. Rev. D* **104**, 022005](#) (2021).
34. R. Abbott,... , **L. Cohen**,... , S. Guillot, "Diving below the spin-down limit: Constraints on gravitational waves from the energetic young pulsar PSR J0537-6910," [*The Astrophysical Journal Letters* **913**, L27](#) (2021).

Publications (in preprint or in preparation):

35. R. van der Meer, Z. Huang, M. C. Anguita, D. Qu, P. Hooijschuur, H. Liu, M. Han, J. J. Renema, **L. Cohen**, "Experimental Simulation of Loop Quantum Gravity on a Photonic Chip," under review
36. M. P. Bart, N. J. Savino, P. Regmi, **L. Cohen**, H. Safavi, H. C Shaw, S. Lohani, T. A. Searles, B. T. Kirby, H. Lee, R. T. Glasser, "Deep learning for enhanced free-space optical communications," under review
37. **L. Cohen**, "Is quantum illumination feasible for ranging?" in preparation
38. **L. Cohen**, Y. Pilnyak, D. Istrati, E. S. Matekole, Y. Sher, H. S. Eisenberg, and J. P. Dowling, "Measuring the Schmidt number of parametric down conversion by exploiting photon distribution," in preparation
39. **L. Cohen**, "Is quantum illumination feasible for ranging?" in preparation

Conference talks:

1. **Invited Talk:** "Quantum LIDAR and my work experience with Jonathan Dowling," **L. Cohen**, Jonathan P. Dowling Memorial Conference on Quantum Science and Technology, Baton Rouge, May 2022.
2. "Shadow Imaging with Low-Intensity Thermal Light," P. Barge, Z. Niu, S. Cuozzo, I. Novikova, E. Mikhailov, H. Lee, **L. Cohen**, Bulletin of the American Physical Society, Chicago, March 2022.
3. "Imaging from quantum noise without a camera," S. L. Cuozzo, C. Gabaldon, P. Barge, H. Lee, **L. Cohen**, I. Novikova, E. Mikhailov, Bulletin of the American Physical Society, Chicago, March 2022.
4. "Low-Light Shadow Imaging using Quantum-Noise Statistics," Z. Niu, S. Cuozzo, I. Novikova, E. Mikhailov, P. Barge, H. Lee, **L. Cohen**, 2021 Annual Meeting of the APS Mid-Atlantic Section, New Brunswick, December 2021.
5. "Low-light Single Pixel Imaging Using Quantum Noise," S. Cuozzo, P. Barge, E. Mikhailov, I. Novikova, H. Lee, **L. Cohen**, 2021 Annual Meeting of the APS Mid-Atlantic Section, New Brunswick, December 2021.
6. "Optimal Quantum Ranging —Hypothesis Testing for an Unknown Return Signal," **L. Cohen**, M. M. Wilde, Quantum Information and Measurements, Online (Washington DC), November 2021.
7. "Quantum Noise Imaging using Quadrature Squeezed Vacuum Optical Fields," S. L. Cuozzo, N. Prajapati, P. Barge, N. Bhusal, H. Lee, **L. Cohen**, I. Novikova, E. Mikhailov, CLEO: QELS_Fundamental Science, San Jose, May 2021.
8. "Encoding Qubit-Qudit States in Photon Polarization and Picosecond Time-Bins," Y. Pilnyak, Y. Schechter, D. Pleban, L. Vidro, P. Zilber, **L. Cohen**, D. Istrati, and H. S. Eisenberg, CLEO: QELS_Fundamental Science, San Jose, May 2021.

9. *"Quantum Imaging with a Camera - a Multimode Framework,"* S. L. Cuozzo, P. Barge, N. Prajapati, N. Bhusal, H. Lee, L. Cohen, I. Novikova, E. E. Mikhailov, QuILT Day, Online, December 2020.
10. *"Simulation of Loop Quantum Gravity--A Scalable Linear-Optical Approach,"* L. Cohen, A. J. Brady, Z. Huang, H. Liu, D. Qu, J. P. Dowling, and M. Han, Frontier in Optics, Online (Washington DC), September 2020.
11. *"Imaging with Squeezed Vacuum,"* S. Cuozzo, N. Prajapati, L. Cohen, E. S. Matekole, J. P. Dowling, E. Mikhailov, I. Novikova, Frontier in Optics, Online (Washington DC), September 2020.
12. *"Imaging Spatial Quantum Noise Suppression,"* S. Cuozzo, N. Prajapati, L. Cohen, E. S. Matekole, J. P. Dowling, E. Mikhailov, I. Novikova, 51st Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, Portland, June 2020.
13. *"Experimental Mapping of Correlations of Structured Two Mode Squeezed Twin Beams,"* N. Prajapati, S. Cuozzo, L. Cohen, E. S. Matekole, J. P. Dowling, E. Mikhailov, I. Novikova, 51st Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, Portland, June 2020.
14. *"Quantum Enhancement of Optical Measurements using Four-wave Mixing in Rb vapor,"* I. Novikova, N. Prajapati, S. Cuozzo, E. S. Matekole, L. Cohen, J. P. Dowling, E. Mikhailov, CLEO: QELS_Fundamental Science, San Jose, May 2020.
15. *"Encoding and decoding of photon states in polarization and picosecond time bin,"* Y. Pilnyak, Y. Schechter, D. Pleban, L. Vidro, P. Zilber, L. Cohen, D. Istrati, and H. S. Eisenberg, QuILT Day, New Orleans, March 2019.
16. *"Generating multi-photon entangled states from a single deterministic single-photon source,"* D. Istrati, Y. Pilnyak, L. Cohen, H. S. Eisenberg, C. A. Solanas, J. C. L. Rosillo, P. Hilaire, H. Ollivier, C. Millet, A. Lemaître, I. Sagnes, A. Harouri, L. Lanco and P. Senellart, QIM, Rome, April 2019.
17. *"Generating multi-photon entangled states from a single deterministic single-photon source,"* D. Istrati, Y. Pilnyak, L. Cohen, H. S. Eisenberg, C. A. Solanas, J. C. L. Rosillo, P. Hilaire, H. Ollivier, C. Millet, A. Lemaître, I. Sagnes, A. Harouri, L. Lanco and P. Senellart, International Conference on Integrated Quantum Photonics, Paris, October 2018.
18. **Invited Talk:** *"Low intensity LiDAR using compressed sensing and a photon number resolving detector,"* Y. Sher, L. Cohen, D. Istrati, and H. S. Eisenberg, SPIE Photonic West, San Francisco, January 2018.
19. *"Optical Demonstration of a Bit-Flip Correction for Enhanced Sensitivity Measurements,"* L. Cohen, Y. Pilnyak, D. Istrati, A. Retzker, and H. S. Eisenberg, QIM, Paris, April 2017.
20. *"Quantum Tomography of Photon States Encoded in Polarization and Time,"* Y. Pilnyak, P. Zilber, L. Cohen and H. S. Eisenberg, QIM, Paris, April 2017.
21. *"Optical Demonstration of a Bit-Flip Correction for Enhanced Sensitivity Measurements,"* L. Cohen, Y. Pilnyak, D. Istrati, A. Retzker, and H. S. Eisenberg, OASIS 6, Tel Aviv, February 2017.

22. **Wolf price competition:** *"Optical Demonstration of a Bit-Flip Correction for Enhanced Sensitivity Measurements,"* L. Cohen, Y. Pilnyak, D. Istrati, A. Retzker, and H. S. Eisenberg, *Frontier in Optics*, Rochester, October 2016.
23. *"Time of Flight Rangefinding using Small Number of Photons,"* L. Cohen, D. Istrati, H. S. Eisenberg. *Light in defense*, Be'er Sheva, May 2015.
24. *"Experimental super resolved phase measurements at the shot noise limit,"* L. Cohen, L. Dovrat, D. Istrati, H. S. Eisenberg, *CLEO*, San Jose, June 2013.
25. "Direct measurements of the non-classicality degree in photon-number correlations", L. Dovrat, M. Bakstein, A. Shaham, E. Megidish, A. Halevy, L. Cohen, D. Istrati and H. S. Eisenberg. San Jose, June 2013.
26. *"Experimental super resolved phase measurements at the shot noise limit"*, L. Cohen, L. Dovrat, D. Istrati, H. S. Eisenberg. *IPS annual meeting*, Hebrew University of Jerusalem, December 2012.
27. *"Experimental super resolved phase measurements at the shot noise limit,"* L. Cohen, L. Dovrat, D. Istrati, H. S. Eisenberg. *Annual meeting of the Israel Physics Society*, Hebrew University of Jerusalem, December 2012.
28. "Direct measurements of the non-classicality degree in photon-number correlations", L. Dovrat, M. Bakstein, A. Shaham, E. Megidish, A. Halevy, L. Cohen, D. Istrati and H. S. Eisenberg. *IPS annual meeting*, Haifa, December 2011.

Conference posters:

29. *"Quadrature Shadow Imaging with Thermal Light,"* Z. Niu, S. L. Cuozzo, P. J. Barge, H. Lee, L. Cohen, E. E. Mikhailov, and I. Novikova, *Bulletin of the American Physical Society*, Chicago, March 2022.
30. *"Quantum Shadow Imaging with Thermal Light,"* Z. Niu, S. L. Cuozzo, P. J. Barge, H. Lee, L. Cohen, E. E. Mikhailov, and I. Novikova, *Frontier in Optics*, Online (Washington DC), November 2021.
31. *"Bit-Error Rate Reduction of Free-Space Optical ON-OFF Keying with Atmospheric Effects,"* N. J. Savino, M. P. Bart, P. Regmi, S. Lohani, L. Cohen, S. K. Wyllie, H. C. Shaw, H. Safavi, H. Lee, T. A. Searles, B. T. Kirby, R. T. Glasser, *Frontier in Optics*, Online (Washington DC), November 2021.
32. *"Sequential Generation of Linear Cluster States from a Single Photon Emitter,"* D. Istrati, Y. Pilnyak, J. C. Loredó, C. Antón, N. Somaschi, P. Hilaire, H. Ollivier, M. Esmann, L. Cohen, L. Vidro, C. Millet, A. Lemaître, I. Sagnes, A. Harouri, L. Lanco, P. Senellart, and H. S. Eisenberg, *Frontier in Optics*, Washington DC, September 2020.
33. *"Numerical Evaluation of Ponderomotive Entanglement in Realistic Experimental Conditions"* K. Y. Dixon, L. Cohen, N. Bhusal, N. Wipf, J. P. Dowling, and T. Corbitt, *Frontier in Optics*, Washington DC, September 2020.
34. *"Identifying Laguerre-Gaussian Modes using Convolutional Neural Network,"* S. Sharifi, Y. Banadaki, E. S. Matekole, S. Cuozzo, N. Bhusal, L. Cohen, A. Kalasky, N.

- Prajapati, R. Soto-Garcia, S. Brown, I. Novikova, E. Mikhailov, G. Veronis and J. P. Dowling, 18th IEEE International Conference On Machine Learning And Applications, Boca Raton, December 2019.
35. *"Filtering Coherent Signal from Thermal Noise by Photon-Number Thresholding,"* L. Cohen, E. S. Matekole, Y. Sher, D. Istrati, H. S. Eisenberg, and J. P. Dowling, *Frontier in Optics*, Washington DC, September 2019.
 36. *"Improving Quantum Noise Suppression Using Spatial Beam Profile Optimization,"* Savannah L. Cuzzo, Austin T. Kalasky, Nikunj Kumar Prajapati, Elisha Siddiqui, Safura Sharifi, Lior Cohen, Yaser Banadaki, Jonathan P. Dowling, Irina Novikova, and Eugeny E. Mikhailov, *Frontier in Optics*, Washington DC, September 2019.
 37. *"Squeezed Light Detection Using Quantum Imaging,"* E. S. Matekole, S. Cuzzo, L. Cohen, H. Lee, I. Novikova, E. Mikhailov, J. P. Dowling and J. P. Dowling, *Frontier in Optics*, Washington DC, September 2019.
 38. *"Thresholded Quantum LIDAR--Exploiting Photon-Number-Resolving Detection,"* L. Cohen, E. S. Matekole, Y. Sher, D. Istrati, H. S. Eisenberg, and J. P. Dowling, *Coherence and Quantum Optics*, Rochester NY, August 2019.
 39. *"A Compact and scalable source for entangled photonic linear cluster states,"* D. Istrati, Y. Pilnyak, L. Cohen, L. Vidro, H. S. Eisenberg, J. C. Loredó Rosillo, C. Antón, P. Hilaire, H. Ollivier, C. Millet, A. Lemaître, I. Sagnes, A. Harouri, L. Lanco, and P. Senellart, *Coherence and Quantum Optics*, Rochester NY, August 2019.
 40. *"Absolute self-calibration of single-photon and multiplexed photon-number-resolving detectors,"* L. Cohen, Y. Pilnyak, D. Istrati, N. Studer, J. P. Dowling and H. S. Eisenberg, *International Conference on Integrated Quantum Photonics*, Paris, October 2018.
 41. *"Photon states encoded in polarization and picosecond time-bins,"* Y. Pilnyak, Y. Schechter, D. Pleban, L. Vidro, P. Zilber, L. Cohen, D. Istrati and H. S. Eisenberg, *International Conference on Integrated Quantum Photonics*, Paris, October 2018.
 42. *"Optical Demonstration of a Bit-Flip Correction for Enhanced Sensitivity Measurements,"* L. Cohen, Y. Pilnyak, D. Istrati, A. Retzker, and H. S. Eisenberg, *International Conference on Quantum Communication, Measurement and Computing*, Baton Rouge, March 2018.
 43. *"Absolute self-calibration of single-photon and multiplexed photon-number-resolving detectors,"* L. Cohen, Y. Pilnyak, D. Istrati, N. Studer, J. P. Dowling and H. S. Eisenberg, *International Conference on Quantum Communication, Measurement and Computing*, Baton Rouge, March 2018.
 44. *"Optical Demonstration of a Bit-Flip Correction for Enhanced Sensitivity Measurements,"* L. Cohen, Y. Pilnyak, D. Istrati, A. Retzker, and H. S. Eisenberg, *Italian Quantum Information Science Conference*, Rome, September 2016.
 45. *"Demonstration of a Bit-Flip Correction for Enhanced Sensitivity Measurements."*, L. Cohen, Y. Pilnyak, D. Istrati, A. Retzker, and H. S. Eisenberg, *PSAS*, Jerusalem, May 2016.

46. *"Experimental super resolved phase measurements at the shot noise limit,"* L. Cohen, L. Dovrat, D. Istrati, H. S. Eisenberg. *Quantum Information and Measurements*, Rochester, June 2013.
47. "Direct measurements of the non-classicality degree in photon-number correlations", L. Dovrat, M. Bakstein, A. Shaham, E. Megidish, A. Halevy, L. Cohen, D. Istrati and H. S. Eisenberg. *QIM*, Berlin, March 2012.

Seminars:

1. *"Quantum LIDAR Utilizing Photon-Number Detection,"* The Hebrew University of Jerusalem Quantum Physics Seminar, April 2022.
2. *"Quantum LIDAR Utilizing Photon-Number Detection,"* Colorado University Boulder ECEE seminar, September 2021.
3. *"Quantum Effects utilizing Photon-Number Detection,"* William & Mary Physics Colloquia, October 2020.
4. *"Quantum Effects utilizing Photon-Number Detection,"* Louisiana State University Physics & Astronomy Colloquium, September 2020.

PI/co-PI grants:

1. *"Quantum Sensing, Imaging, and Metrology using Multipartite Orbital Angular Momentum Entanglement,"* ARO, 2020-2021, \$60k. Wrote the entire grant (technical part).
2. *"Quantum Technologies that Reject Thermal Noise in Coherent States,"* Joint grant of AFOSR and Israeli IMOD, 2021, each agency provided \$100k. (PI at LSU, Co-PI when moved to CU)

Participating in winning grant:

1. *"Quantum Technologies that Reject Thermal Noise in Coherent States,"* Joint grant of AFOSR and Israeli IMOD, 2018-2021, each agency provided \$300k. Wrote the experimental side of the proposal and came up with the idea of one part out of four.

Mentoring students:

1. Greg Krueper, graduate student, 2021- . expected *Graduation May 2024*.
2. Pratik Barge, graduate student, 2020- . expected *Graduation May 2024*
3. Anthony Brady, graduate student, 2018-2021. *Graduated May 2021*. Current position: Postdoctoral Researcher at University of Arizona
4. Kahlil Dixon, graduate student, 2018-2021. *Graduated May 2021*. Current position: Postdoctoral Researcher at Sandia National Laboratories
5. Elisha Matekole, graduate student, 2018-2020. *Graduated May 2020*. Current position: Postdoctoral researcher at Brookhaven National Laboratory

Student committees:

- 2022 – Savannah Cuozzo – PhD defense (William and Mary College)
 Pratik Barge – PhD general exam (Louisiana State University)
- 2020 – Kahlil Dixon – PhD defense (Louisiana State University)

Patents:

1. J. T. Gopinath, G. Krueper, and **L. Cohen**, “Quantum Sensing and Computing Using Cascaded Phases in Optical Fiber,” US Provisional Patent 63427396, filed on November 12, 2022, CU File No. CU5587B (C01.182).
2. J. T. Gopinath, G. Krueper, and **L. Cohen**, “Entanglement-Enhanced Interferometers,” US Provisional Patent 17742277, filed on May 12, 2021, CU File No. CU5587B (C01.182).
3. H. S. Eisenberg, **L. Cohen**, D. Istrati, “Photon-number resolving detectors (PNRD) for range finding,” Israel Provisional Patent 232644, filed on May 15 2014.

Honors, Prizes and Awards:

- Finalist of Milton and Rosalind Chang Pivoting Fellowship, 2020.
- Outstanding lab instructor of 2018.
- Finalist of the Emil Wolf Student Paper Competition, 2016.
- B.Sc. with honors, 2010.

Service activities:

Roles:

2014-2018 The president of the OSA (optical society of America) HUJI student chapter.

2013-2014 The treasurer of the OSA HUJI student chapter.

2018 Session chair in the International Conference on Quantum Communication, Measurement and Computing (QCMC), Baton Rouge, LA.

Outreach

2020 Conducting optics course for elementary school in Louisiana.

2013- Conducting optics demonstrations in kindergartens.

Refereeing in grant committees:

2021- Referee for Research Grants Council of Hong Kong.

Refereeing in peer review journals:

2022- Referee for Entropy (MDPI).

2022- Referee for Scientific reports.

2022- Referee for Photonics (MDPI).

2021- Referee for Physical Review A.

2021- Referee for Journal of the Optical Society of America B.

2020- Referee for Physical Review Letters.

2019- Referee for Optics Express.

2019- Referee for Advanced Quantum Technologies.

2017- Referee for Optica.