SARA MOURADIAN, IC Fellow **smouradi@berkeley.edu**
LeConte Hall, Berkeley, CA 94720

EDUCATION

PhD, Massachusetts Institute of Technology June 2018
- Supervisor: Dirk Englund

Master of Engineering, Massachusetts Institute of Technology. EECS Feb. 2012
- Supervisors: Jeffrey H. Shapiro and Franco N.C. Wong,

Bachelor of Science, Massachusetts Institute of Technology May 2010
Major: EECS *Minor:* Biological Engineering

RESEARCH

Trapped Ion Group, University of California, Berkeley August 2018 - present
- Working to demonstrate a multi-register optical control system for trapped ion quantum sensing.
- Theory and demonstration of quantum sensing of intermittent stochastic signals.
- Coherent control of angular momentum states of trapped ions for quantum simulation.

Quantum Photonics Laboratory, RLE, MIT June 2013 - July 2018
- Improving scalability of solid-state quantum systems via design and fabrication of nanostructures for enhanced collection efficiency and integration of these nanostructures into a photonic chip.

Nano Optics Division, Max Planck Institute for the Science of Light Feb - Aug 2012
- Development of a fiber-based microcavity to enhance interaction with single emitters.

Optical and Quantum Communications Group, MIT Jun 2010 - Feb 2012, Sept 2012 - Jun 2013
- Demonstration of sub-Rayleigh grayscale resolution through dynamic thresholding.
- First implementation of quantum illumination in the optical domain.

Undergraduate Research, MIT 2007-2009
- Niles Lab: Worked to develop an in-vivo screening system for RNA aptamers. Summer 2009
- MIT iGEM: Genetically engineered yogurt bacteria for protein production. Summer 2008
- MASLAB Robotics: Built a robot to navigate a novel environment. January 2008
- Keating Lab: Crystallized protein-peptide complexes. March - August 2007

SELECTED PAPERS (Reverse Chronological Order)

As of December 23, 2020, Total Citations: 1090; h-index: 16; i10-index: 18

- Sara Mouradian, Neil Glikin, Eli Megidish, Kai-Isaak Ellers, Hartmut Haeffner *Quantum Sensing of Intermittent Stochastic Signals* arXiv:2010.03678 (under review).
- Erik Urban, Neil Glikin, Sara Mouradian, Kai Krimmel, Boerge Hemmerling, Hartmut Haeffner *Coherent Control of the Rotational Degree of Freedom of a Two-Ion Coulomb Crystal* Physical Review Letters **123**, 133202 (2019).
- Sara Mouradian, Noel Wan, Tim Schröder, Dirk Englund *Rectangular Photonic Crystal Nanobeam Cavities in Bulk Diamond* Applied Physics Letters **111**, 021103 (2017).
- Sara Mouradian, Dirk Englund *A Tunable Waveguide-Coupled Cavity Design for Scalable Interfaces to Solid-State Quantum Emitters* APL Photonics **2**, 046103 (2017).
- Tim Schröder, Sara L Mouradian, Jiabao Zheng, Matthew E Trusheim, Michael Walsh, Edward H Chen, Luozhou Li, Igal Bayn, Dirk Englund *Quantum Nanophotonics in Diamond* JOSA B (Invited) **33** B65-B83 (2016).
- Sara Mouradian*, Tim Schröder*, Carl B. Poitras, Luozhou Li, Jordan Goldstein, Edward H. Chen, Michael Walsh, Jaime Cardenas, Matthew L. Markham, Daniel J. Twitchen, Michal Lipson, Dirk Englund *Scalable Integration of Long-Lived Quantum Memories into a Photonic Circuit* Physical Review X **5**, 031009 (2015).

- Zheshen Zhang, Sara Mouradian, Franco N.C. Wong, Jeffrey H. Shapiro. *Entanglement-Enhanced Sensing in a Lossy and Noisy Environment* Physical Review Letters **114**, 110506, (2015).
- Igal Bayn*, Sara Mouradian* , Luozhou Li, Tim Schröder, Ophir Gaathon, Ming Lu, Aaron Stein, Dirk Englund *Fabrication of Triangular Nano Beam Waveguide Networks in Bulk Diamond Using Single-Crystal Silicon Hard Masks* Applied Physics Letters **105** (21), 211101 (2014)
- Sara Mouradian, Franco N.C. Wong, Jeffrey H. Shapiro *Achieving Sub-Rayleigh Resolution via Thresholding* Optics Express **19**, 5480-5488 (2011).

INVITED PRESENTATIONS

Engineering Scalable Quantum Systems OSA Quantum Science and Technology Technical Group (2020)
Increasing Connectivity in Complex Quantum Systems IQC, Quantum Innovators (2019)
Scalable Solid State Quantum Information Processing Caltech Young Investigator Series (2017)
Scalable Solid State Quantum Information Processing Rising Stars in EECS (2017)
Scalable Integration of Solid State Quantum Memories Coupled to a Photonic Integrated Circuit URSI (2017)
Semiconductor Quantum Technologies for Quantum Secure Communications and Scalable Quantum Networks Photonics North (2017)
NV-based quantum memories coupled to photonic integrated circuits SPIE Nanoscience + Engineering (2016)

AWARDS AND FELLOWSHIPS

Intelligence Community Postdoctoral Research Fellowship — Oct 2019 - Present
Dimitris N. Chorafas Dissertation Award — 2018
MIT Microsystems Technology Laboratory Dissertation Award — 2018
iQuISE IGERT (NSF) — Fall 2014, Spring 2015

TEACHING AND MENTORING

Nanostructure Fabrication, Teaching Assistant — Spring 2015
Fundamentals of Photonics, Teaching Assistant — Fall 2013
Introduction to EECS I, Laboratory Assistant — Spring, Fall 2008
Introduction to Python, Laboratory Assistant — January 2009

Undergraduate Research Opportunity Program (UROP)

- Supervised simulations and measurements of simulated devices, work led to publications. — Fall 2013-2014, Spring 2016, Fall 2017
- Taught introductory optics concepts and oversaw the building of a new setup. — Spring 2015

Visiting international students

- Taught simulation techniques to a high school student and oversaw the project, which won the program's first prize. — Summer 2017
- Taught spectroscopy techniques and oversaw initial experiments that led to Master's thesis and further experiments. The student began a PhD in the group after graduating and the results have been published. — Summer, Fall 2014
- Taught spectroscopy techniques and oversaw initial experiments that led to a Master's thesis, and a publication. — Summer, Fall 2015
- Gave introductory research talk to high school students visiting from South Korea and answered questions about university life in the U.S. — Summer, Fall 2015

LEADERSHIP AND COMMUNITY SERVICE

OSA Quantum Science and Technology Technical Group Event's Officer — Spring 2020 - Present
Quantum Sensing Committee — OSA Sensors 2021
iQuISE Seminar Series, President — Fall 2014 - Spring 2018
Reviewed papers for Physical Review Letters, PRX Quantum, PRA, PRB, Proceedings of the National Academy of Sciences, Nature: Scientific Reports, APL, and Optics Express