

# ALEXANDER D. WHITE

## EDUCATION

---

<b>Stanford University</b> PhD in Electrical Engineering	<i>September 2019 - March 2024</i> GPA: 4.2
<b>California Institute of Technology</b> BS in Electrical Engineering	<i>September 2015 - June 2019</i> GPA: 3.9

## AWARDS AND HONORS

---

Inaugural NTT Research Fellow	2022-2024
Herb and Jane Dwight Stanford Graduate Fellow	2019-2024

## PUBLICATIONS

---

- White, A.D.\*, Ahn, G.H.\* et al. (2024) *Unified laser stabilization and isolation on a silicon chip.* in revision
- White, A.D.\*, Ahn, G.H.\* et al. (2023) *Integrated Passive Nonlinear Optical Isolators.* Nature Photonics
- Gelly, R.J.\*, White, A.D.\*, et al. (2023) *An inverse-designed nanophotonic interface for excitons in atomically thin materials.* Nano Letters
- Ahn, G.H.\*, White, A.D.\*, Kim, H.J.\*, et al. (2023) *Platform-agnostic waveguide integration of high-speed photodectors with evaporated tellurium thin films.* Optica
- White, A.D., et al. (2022) *Gradient-based optimization of optical vortex beam emitters.* ACS Photonics
- White, A.D.\*, Trivedi R.\*, et al. (2022) *Enhancing superradiance in dynamically modulated Tavis-Cummings model with spectral disorder.* ACS Photonics
- Yang, K\*, Shirpurkar, C\*, White, A.D.\*, et al. (2022) *Inverse-designed multi-dimensional silicon photonic transceivers.* Nature Communications
- Ahn, G.H., Yang, K.Y., Trivedi, R.T., White, A.D., et al. (2022) *Photonic inverse design of on-chip microresonators.* ACS Photonics
- Sideris, C., Khachatryan, A., White, A.D., Bruno, O.P., Hajimiri A. (2022) *Foundry-fabricated grating coupler demultiplexer inverse-designed via fast integral methods* Communications Physics
- Lukin D.\*, White, A.D.\*, et al. (2020) *Spectrally reconfigurable quantum emitters enabled by optimized fast modulation.* npj Quantum Information
- White, A.D., Khial P., Hajimiri A. (2020) *A silicon photonics computational lensless active-flat-optics imaging system.* Scientific Reports
- Trivedi, R.T., White, A.D., Vuckovic, J. (2020) *Analytic and geometric properties of scattering from periodically modulated quantum-optical systems.* Physical Review A
- Esparza, M., Mor, A., Niederstrasser, H., White, K., White, A.D., et al. (2020) *Chemical intervention of influenza virus mRNA nuclear export.* PLoS Pathogens
- Khial P., White, A.D., Hajimiri A. (2018) *Nanophotonic optical gyroscope with reciprocal sensitivity enhancement.* Nature Photonics
- Mor, A., White, A.D., Zhang, K., Thompson, ... Fontoura, B. M. (2016). *Influenza virus mRNA trafficking through host nuclear speckles.* Nature Microbiology

## SELECTED PATENTS

---

*Integrated Laser Stabilization with Built-In Isolation.* First author; US Patent Application, 2022.

*Interlaced Spiral Optical Gyroscope.* First author; US Patent, 2018.

*Lensless 3-Dimensional Imaging Using Directional Sensing Elements* First author; International Patent, 2017.

*Ultra-thin Planar Lens-less Camera.* Contributing author; International Patent, 2017.

## BOOK CHAPTERS

---

White, A.D., Ahn, G.H., Van Gasse K., Vuckovic, J., *Optical isolators and non-reciprocal transmission based upon nonlinear effects*, in *Integrated Optical Isolators*, Springer Series in Optical Sciences, 2023

## SELECTED CONFERENCE PAPERS AND PRESENTATIONS

---

“Fully Passive On-Chip Nonlinear Continuous Wave Optical Isolators,” A.D. White, G.H. Ahn, K. Van Gasse, J. Vuckovic, CLEO, San Jose, CA, May 2023

“Platform independent integration of telluride thin films for high speed on-chip photodetection,” G.H. Ahn, A.D. White, H.J. Kim, et. al, CLEO, San Jose, CA, May 2023

“Passive Nanophotonic Optical Isolators,” A.D. White, G.H. Ahn, K. V. Gasse, J. Vuckovic, PECS XIII, Tokyo, Japan, March 2023

“Inverse Design of Multi-Layer Foundry-Fabricated Optical Vortex Beam Emitters,” A.D. White, et. al, CLEO, San Jose, May 2022

“Integrated Passive Nonlinear Optical Isolators,” A.D. White, et. al., CLEO, San Jose, May 2022

“Inverse-designed Optical Vortex Beam Emitters,” A.D.White, K.Y.Yang, J.Vuckovic, CLEO (2021)

“Broadband Tuning and Microwave Control of Color Centers in Silicon Carbide,” A.D. White, D.M. Lukin, M.A. Guidry, R. Trivedi, J. Vuckovic, CLEO, San Jose, CA, June 2020

## RESEARCH EXPERIENCE

---

**Deisseroth Lab, Stanford, Palo Alto CA** 2024 - Present  
*Postdoctoral Research Fellow*

- Developing and using new optical and mathematical tools to study brain function.

**Vuckovic Lab, Stanford, Palo Alto CA** 2019 - 2024  
*Herb and Jane Dwight Stanford Graduate Fellow, NTT Research Fellow*

- Engineering optical devices at the nano scale to solve problems in communications, quantum science, and biosensing.

**Soh Lab, Stanford, Palo Alto CA** 2019 - 2024  
*Herb and Jane Dwight Stanford Graduate Fellow, NTT Research Fellow*

- Developing optical biosensors and leading efforts in the group to develop optical readout devices for biomolecular switches.

**Cirac Group, MPQ, Garching, Germany** Summer 2023  
*Visiting Research Scientist*

- Studied the control of disordered many body quantum systems.

**Hajimiri Lab, Caltech, Pasadena CA** 2017 - 2019  
*Research Fellow and Rose Hills Foundation SURF*

- Helped develop the first silicon photonics optical gyroscope. Designed several silicon photonics systems including a computational lensless camera.

**Murray Lab, Caltech, Pasadena CA**

2016

*Research Fellow and SURF*

- Functionalized a transcription-translation system for paper-based biosensor arrays and developed new genetic circuits for sensor visualization.

**Fontoura Lab, UT Southwestern Medical Center, Dallas TX**

2013-2015

*Research Fellow*

- Studied the influenza A infection mechanism with the ultimate goal of finding critical interactions that could be targeted by drugs.

## TEACHING POSITIONS

---

Teaching Assistant: **EE 44 Circuits and Systems**, Professor Ali Hajimiri 2018

Teaching Assistant: **EE 223 Applied Quantum Mechanics II**, Professor David Miller 2023

Instructor,: **Stanford Ceramics** 2022-present

## PEER REVIEW

---

Reviewer for Optics Letters 2023-present

Reviewer for Scientific Reports 2023-present

Regular reviewer for ACS Photonics 2020-present