

# Shawn Geller

GRADUATE STUDENT · QUANTUM CHARACTERIZATION

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## Summary

PhD student working in quantum information theory, specializing in characterization of quantum systems.

## Work Experience

### National Institute of Standards and Technology

Boulder, CO

RESEARCH ASSISTANT, KNILL GROUP

January, 2019 - Present

- Developed theory for adaptive measurement strategies for application to repeated fluorescence measurements, for example in trapped-ion systems.
- Worked with Ion storage group at NIST to characterize measurement fidelity of an ion system under repetitive fluorescence measurement.
- Worked with Kaufman Lab at JILA to characterize indistinguishability of a neutral atom array.
- Worked with Aumentado group at NIST to characterize entanglement in coupled mechanical oscillators.

### University of Colorado

Boulder, CO

RESEARCH ASSISTANT, DESSAU GROUP

May, 2018 - January, 2019

- Performed characterization of various materials, using methods such as XRD, ARPES, SNOM

### University of Colorado

Boulder, CO

TEACHING ASSISTANT

August, 2017 - May, 2018

- Taught recitation sections of introductory electrodynamics and introductory mechanics.

### National Institute of Standards and Technology

Boulder, CO

RESEARCH ASSISTANT, KNAPPE GROUP

August, 2015 - August, 2016

- Performed testing of Rubidium atomic magnetometers and gradiometers.
- Designed PCBs for lasers to heat an array of atomic magnetometers.

## Presentation

### DevFest Seoul by Google Developer Group Korea

Seoul, S.Korea

PRESENTER FOR <HOSTING WEB APPLICATION FOR FREE UTILIZING GITHUB, NETLIFY AND CLOUDFLARE>

Nov. 2017

- Introduced the history of web technology and the JAM stack which is for the modern web application development.
- Introduced how to freely host the web application with high performance utilizing global CDN services.

### 6th CodeEngn (Reverse Engineering Conference)

Seoul, S.Korea

PRESENTER FOR <DEFCON 20TH : THE WAY TO GO TO LAS VEGAS>

Jul. 2012

- Introduced CTF(Capture the Flag) hacking competition and advanced techniques and strategy for CTF

## Publications

### Improving quantum state detection with adaptive sequential observations

Quantum Science and Technology 7

(3), 034004

S GELLER, DC COLE, S GLANCY, E KNILL

May 13, 2022

### High-fidelity indirect readout of trapped-ion hyperfine qubits

Physical Review Letters 128 (16),

160503

SD ERICKSON, JJ WU, PY HOU, DC COLE, S GELLER, A KWIATKOWSKI, S GLANCY, E KNILL, DH SLICHTER, AC WILSON, D LEIBFRIED

April 21, 2022

### Direct observation of deterministic macroscopic entanglement

Science 372 (6542), 622-625

S KOTLER, GA PETERSON, E SHOJAEI, F LECOCQ, K CİCAK, A KWIATKOWSKI, S GELLER, S GLANCY, E KNILL, RW SIMMONDS, J AUMENTADO, JD TEUFEL

May 7, 2021

### A microfabricated optically-pumped magnetic gradiometer

Applied Physics Letters 110 (3), 031106

D SHENG, AR PERRY, SP KRZYZEWSKI, S GELLER, J KITCHING, S KNAPPE

January 16, 2017

# Education

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## Reed College

B. A. IN PHYSICS

- Phi Beta Kappa

*Portland, OR*

*Aug. 2011 - May 2015*

## University of Colorado

M. S. IN PHYSICS

*Boulder, CO*

*Aug. 2017 - May 2021*

## University of Colorado

PH. D. IN PHYSICS

*Boulder, CO*

*Expected May 2023*