

**CRAIG HOLLIMAN**  
Denver, CO  
[cholliman3@gmail.com](mailto:cholliman3@gmail.com)

## EXPERIENCE

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**QUANTINUUM**, Broomfield, CO, USA

*Advanced Physicist*, October 2022 - Present

Working in the commercial development team on the new H2 quantum computing system.

**DR. A. M. JAYICH LAB**, University of California, Santa Barbara

*Graduate Student Researcher*, Summer 2017 - Fall 2022

Joined a new experimental quantum physics lab and built multiple experiments designed for fundamental physics and quantum information science. Lead the radium optical clock experiment, a promising system for new physics searches and space-based optical clocks.

**DR. HONG LIN LAB**, Bates College

*Undergraduate Research Assistant*, Fall 2016

Analyzed vertical-cavity surface-emitting lasers subject to optical feedback for thesis work.

**DR. ALBERTO MARINO LAB**, The University of Oklahoma

*Undergraduate Research Assistant*, Summer 2016

Aligned and locked lasers in a quantum optics lab as part of the university's physics REU program.

## EDUCATION

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**UNIVERSITY OF CALIFORNIA, SANTA BARBARA**, Santa Barbara, CA

Physics M.S. 2021, Physics Ph.D. 2022

Thesis: *Clocks, Qubits, and Searches for New Physics*

Outreach: Family Ultimate Science Exploration, MRL Outreach Education Program, Women in Physics

**BATES COLLEGE**, Lewiston, ME

B.A. in Physics and Math, Minor in Chinese, June 2017

Thesis: *Analyzing the Irregularities of Vertical-Cavity Surface-Emitting Lasers*

**PHILLIPS EXETER ACADEMY**, Exeter, NH

High School Diploma, June 2013

Academic Honors; Academic Leader, Chinese. National Hispanic Recognition Honorable Mention.

## PUBLICATIONS

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(8) - *Three-level ion optical clocks*

**C. A. Holliman**, M. Fan, and A. M. Jayich

[Arxiv](#)

(7) - *Measurement of the  $Ra^+ 7p^2P_{3/2}$  state lifetime*

M. Fan, **C. A. Holliman**, A. Contractor, C. Zhang, S. Gebretsadken, and A. M. Jayich

[Physical Review A](#) **105**, 042801 (2022)

(6) - *Radium Ion Optical Clock*

**C. A. Holliman**, M. Fan, A. Contractor, S. M. Brewer, and A. M. Jayich

[Physical Review Letters](#) **128**, 033202 (2022)

(5) - *Optical Mass Spectrometry of Cold  $\text{RaOH}^+$  and  $\text{RaOCH}_3^+$*

M. Fan, **C. A. Holliman**, X. Shi, H. Zhang, M. W. Straus, X. Li, S. W. Buechele, and A. M. Jayich  
*Physical Review Letters* **126**, 023002 (2021)

(4) - *Direct measurement of the  $7s\ ^2S_{1/2} \rightarrow 7p\ ^2P_{3/2}$  transition frequency in  $^{226}\text{Ra}^+$*

**C. A. Holliman**, M. Fan, A. Contractor, M. W. Straus, and A. M. Jayich  
*Physical Review A* **102**, 042822 (2020)

(3) - *Measurements of electric quadrupole transition frequencies in  $^{226}\text{Ra}^+$*

**C. A. Holliman**, M. Fan, and A. M. Jayich  
*Physical Review A* **100**, 062512 (2019)

(2) - *Measurement of the  $7p^2P_{3/2}$  state branching fractions in  $\text{Ra}^+$*

M. Fan, **C. A. Holliman**, S. G. Porsev, M. S. Safronova, and A. M. Jayich  
*Physical Review A* **100**, 062504 (2019)

(1) - *Laser Cooling of Radium Ions*

M. Fan, **C. A. Holliman**, A. L. Wang, and A. M. Jayich  
*Physical Review Letters* **122**, 223001 (2019)

A complete list of publications and presentations can be found on my [Google Scholar](#).

## TALKS

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(2) - *A Radium Ion Optical Clock*

Invited talk, RIKEN Seminar, Tokyo, Japan, April 2022

(1) - *Driving the Optical Clock Transition in  $\text{Ra}^+$*

Contributed talk, DAMOP, online, June 2020

## SKILLS

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Programming/Design:

- **Python** - Proficient in writing code for device servers and GUIs, FPGA pulse sequences to control and readout the quantum state of a qubit, and the statistical analysis of millions of rows of data.
- **MATLAB, Autodesk Inventor, Mathematica, R, SQL**

Computer Competencies: [GitHub](#), [Website Design](#), Microsoft Office, Jupyter, Tableau, BigQuery

Languages: English, Conversational in Japanese and Chinese

## TEACHING/MENTORING EXPERIENCE

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UNIVERSITY OF CALIFORNIA, SANTA BARBARA, Santa Barbara, CA

**Physics 127A, Analog Electronics**, Spring 2020

**Physics 15AH, Experimental Honors Physics**, Fall 2019

**Physics 15CH, Experimental Honors Physics**, Spring 2019

**Physics 6BL, Introductory Physics Lab - Lead TA**, Winter 2019

**Physics Department Head TA**, Fall 2018

Guidance of Multiple Undergraduate Researchers in the A. M. Jayich Lab:

**EUREKA Summer Research 2021** - Cavity-Enhanced Velocity Modulation Spectroscopy of  $\text{TaO}^+$

**MRL CAMP Summer Student Project 2021** - Effusive Oven Source of  $\text{Ra-225}$  for Ion Trapping

**Worster Summer Research Fellowship 2018** - Four Optical Cavities for Precision Measurements