

# Huan Q. Bui

Colby College, 8347 Mayflower Hill, Waterville, ME, 04901

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## EDUCATION

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Colby College, Waterville, ME, Class of 2021

Bachelor of Arts, Majors: Physics & Mathematics, Minor: Statistics

**GPA: 4.15/4.00**

Relevant Coursework: (\*) denotes "Independent Study"

- **Physics:** Quantum Information, Quantum Mechanics, Massive Gravity\*, Topics in Classical Field Theory\*, General Relativity, Classical Mechanics, E&M, Thermo & StatMech, Special Relativity & Quantum Physics
- **Mathematics:** Algebraic Geometry, Abstract Algebra, Real & Complex Analysis, Ordinary & Partial Differential Equations, Matrix Analysis, Linear Algebra, Probability, Vector Calculus, Honors Calculus
- **Statistics:** Statistical Inference (theory), Applied Longitudinal Data Analysis, Statistical Modeling

## EXPERIENCE

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**Research Assistant, Joint Quantum Institute** - NIST & Univ. of Maryland, College Park Jun 2019—

PI: Steven Rolston, University of Maryland, College Park

- Studying  $\infty$ -range interactions of Rb near an optical nanofiber (ONF) via collective decay measurements
- Built a polarization optimization system for a future ONF standing-wave dipole trap
- Developed an stand-alone experimental control program with NI-DAQmx in Python

**Research Assistant, Colby College Department of Physics & Astronomy** Nov 2017—

PI: Charles Conover, Colby College

- 2017-2019: Precision measurement experiments on ultracold potassium in Rydberg states
- 2019-2020: Lifetime measurements of ultracold potassium  $4p$ .
- Data acquisition & analysis
- Built external-cavity diode lasers (ECDL's) & frequency-stabilizer electronics for ECDL's
- Controlled photon-counting modules, waveform generators for MOT field-switching, spectroscopy, etc.

**Teaching Assistant, Colby College Dept. of Physics & Dept. of Math & Stats** Sep 2017—

- Current course: Ordinary Differential Equations.
- Past courses: Linear Algebra, Modern Physics, EM & Optics, Intro to Mechanics
- Grade psets and conduct weekly TA sessions; Prepared lab equipment for EM & Optics

**Physics & Math Tutor, Colby College Dean of Studies** Nov 2018—

- Provide academic assistance through reviewing course material and solving problems

**Math Mentor, Colby College Department of Mathematics & Statistics** Sep 2019—

## HONORS, AWARDS, FUNDS

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**Linda K. Cotter Internship Fund**, for Jan 2020 internship at JQI Jan 2020

**Phi Beta Kappa Scholastic Achievement Award** Sep 2019

**Julius Seelye Bixler Scholar** Sep 2018, Sep 2019

**Meritorious Winner, COMAP Mathematical Contest in Modeling** S'19

**Dean's List** F'17, S'18, F'18, S'19, F'19

## CONFERENCES/PRESENTATIONS

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**DAMOP19:** Millimeter-wave precision spectroscopy of  $d$ - $d$  transitions in potassium Rydberg states

**CLAS 2019:** Matrices in Quantum Computing: A 2-qubit entanglement circuit

**CUSRR2018:** Precision measurement of potassium energy levels at highly excited states

## PROJECTS

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**Personal Website/Archive**, [huanqbui.com](http://huanqbui.com): notes from class and independent readings plus other projects.

**Experimental Physics:** Advisor: Charles Conover; Lifetime measurements of ultracold potassium  $4p$

**Theoretical Physics:** Advisor: Robert Bluhm; Massive Gravity

**Applied Mathematics:** Advisor: Evan Randles; Convolution powers of complex functions & harmonic analysis

## SKILLS

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**Technical:** IGOR Pro, R, Python, NI-MAX, Mathematica,  $\text{\LaTeX}$ , Adobe Illustrator, HTML & CSS, MS Office

**Languages:** English (fluent/proficient), Vietnamese (native)