

Huan Q. Bui

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EDUCATION

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

Undergraduate Researcher, Perimeter Institute for Theoretical Physics

May—Aug 2020

PI: TBA, TBA

- Topic: TBA

Research Assistant, Colby College Dept. of Math & Stats

Oct 2019—

PI: Evan Randles, Colby College

- Convolution powers of complex functions & related topics in harmonic analysis
- Attractors of convolution powers which involve oscillatory integrals

Research Assistant, Joint Quantum Institute - NIST & Univ. of Maryland, College Park

Summer 2019, Jan 2020

PI: Steven Rolston, University of Maryland, College Park

- Studying ∞ -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 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 & Modern Physics II
- Past courses: Linear Algebra, Modern Physics I & II, 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

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

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

Personal Website/Archive, 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

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

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