Huan Q. Bui

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Education

B.A., Colby College, 2021
Physics, Mathematics
Minor: Statistics
GPA: 4.15/4.00

Relevant Coursework: (*) denotes "Independent Study"
Physics: Quantum Information, Quantum Mechanics, Massive Gravity*, Classical Field Theory*, General Relativity, Classical Mechanics, E&M, Thermo & StatMech

Mathematics: Algebraic Geometry, Abstract Algebra, Real Analysis, Complex Analysis, Ordinary Differential Equations, Partial Differential Equations, Matrix Analysis, Linear Algebra, Probability Theory, Vector Calculus, Honors Calculus

Statistics: Statistical Inference, Longitudinal Data Analysis, Statistical Modeling

Research

Research Assistant, Colby Dept. of Mathematics & Statistics, *Oct 2019–Present*
Applied mathematics
Principal Investigator: Evan Randles

Convolution powers of complex functions & related topics in harmonic analysis

Research Assistant, Joint Quantum Institute, College Park, *Summer 2019, Jan 2020*
Experimental atomic physics - quantum information
Principal investigator: Steven Rolston

Studying infinite-range interactions and finding evidence of superradiance and super-superradiance between two Rb ensembles trapped around an optical nanofiber via measuring their collective decay.

Research Assistant, Colby Dept. of Physics & Astronomy, *Nov 2017–Present*
Experimental atomic physics
Principal Investigator: Charles Conover

Precision measurements on ultracold ^{39}K in Rydberg states, *2017-2019*
Lifetime measurements of ultracold $4p$ ^{39}K , *2019-*

Offers

Undergraduate Researcher, Perimeter Institute for Theoretical Physics, *May –Aug 2020*
(*canceled due to COVID-19*)
Topic: Quantum many-body physics on quantum hardware
Principal Investigator: Timothy Hsieh

Summer School, Perimeter Institute for Theoretical Physics, *May 2020*
(*canceled due to COVID-19*)

Research Assistant, Institute for Quantum Computing, Waterloo, *May –Aug 2020*
(*declined to accept offer from Perimeter Institute*)

Summer School, Institute for Quantum Computing, Waterloo, *May 2020*
(*declined to accept offer from Perimeter Institute*)

Teaching Assistantship

Teaching Assistant, Colby Dept. of Physics & Astronomy
Current course: Modern Physics II (quantum)
Instructor: Robert Bluhm
Grade weekly problem sets

Past courses: Modern Physics II (quantum; instructor: Robert Bluhm), Modern Physics I (relativity & early quantum; instructor: Duncan Tate), Introduction to Electricity-Magnetism & Optics (instructor: Charles Conover), Introduction to Mechanics (instructor: Jonathan McCoy)

Teaching Assistant, Colby Dept. of Mathematics & Statistics
Current course: Ordinary Differential Equations
Instructor: Evan Randles
Grade problem sets & hold weekly TA sessions

Past courses: Linear Algebra (instructor: Otto Bretscher)

Mathematics & Physics Tutor, Colby Deans of Studies
Provide academic assistance through reviewing course material and solving problems

Awards Honors Fundings

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

Phi Beta Kappa Scholastic Achievement Award, *Sep 2019*
The Phi Beta Kappa Scholastic Achievement Award was established by the Beta Chapter of Colby College in 1992 to recognize students from the sophomore and junior classes for exceptional scholastic performance.

Julius Seelye Bixler Scholar, *Sep 2018, Sep 2019*
Bixler Scholars are the top-ranking students as determined by the cumulative academic record at the end of the preceding year.

Meritorious Winner, COMAP Mathematical Contest in Modeling, *S'19*
Top 8% out of more than 10,000 teams

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

Conferences Presentations

CLAS 2020, *May 2020*
Massive Gravity
(*canceled due to COVID-19*)

CLAS 2020, *May 2020*
Topics in Quantum Information

(*canceled due to COVID-19*)

DAMOP19, *May 2019*
Millimeter-wave precision spectroscopy of d-d transitions in ^{39}K Rydberg states

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

CUSRR2018, *Jul 2018*
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
Theoretical aspects of Massive Gravity

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

Skills

Physics research: quantum & atomic physics, optics, atomic spectroscopy, precision measurement, Ramsey spectroscopy, fabricating optical nanofibers, polarization control in optical nanofibers, magneto-optical trapping, optical dipole trapping, constructing external-cavity diode lasers, constructing frequency-stabilizing electronics for external-cavity diode lasers, operating/programming arbitrary waveform generators/power supply for various purposes, data acquisition & analysis

Technical/Others: IGOR Pro, R, Python, NI-MAX, PicoHarp & TimeHarp (photon-counting modules), Mathematica, LaTeX, HTML & CSS, MS Office, Adobe Illustrator, Adobe Lightroom, Photography

Languages

English (fluent), Vietnamese (native),

Activities

Outreach

Math Mentor, Colby Dept. of Mathematics & Statistics

Colby Society of Physics Students, Colby Photography Club, Colby Ultimate Frisbee

References

Professor Robert Bluhm
Department of Physics & Astronomy
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Professor Charles Conover
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Professor Evan Randles
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