

Kit Newton

University of Wisconsin-Madison
Department of Mathematics

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Education

University of Wisconsin-Madison

Ph.D. Candidate, Physics, 2016-Present.

Expected completion date: May 2020

Field: Computational Mathematics

Adviser: Qin Li

M.A., Mathematics, December 2018

M.A., Physics, May 2018

Reed College

B.A., Physics, 2016.

Thesis: Bohmian Mechanics and Magnetism: A Computational Approach

Adviser: Joel Franklin

Publications

Q. Li and K. Newton,

Diffusion equation assisted Markov chain Monte Carlo methods
for the inverse radiative transfer equation.

Entropy 21 (3) 2019.

E-print: <https://www.mdpi.com/1099-4300/21/3/291>.

K. Newton, Q. Li, and A. Stuart,

Diffusive optical tomography in a Bayesian framework.

Submitted February 2019

E-print: <https://arxiv.org/abs/1902.10317>.

J. Franklin and K. Cole Newton,

Classical and quantum mechanical motion in magnetic fields.

American Journal of Physics 84 (263) 2016

E-print: <https://arxiv.org/abs/1603.01211>.

J. Franklin, Y. Guo, K. Cole Newton, and M. Schlosshauer,

The dynamics of the Schrödinger-Newton system with self-field coupling.

Classical and Quantum Gravity 33 (7), 2016

E-print: <https://arxiv.org/abs/1603.03380>

Presentations

“Two-level MCMC methods for diffuse optical tomography”
AWM Symposium
Rice University, April 2019.

“A Bayesian perspective on diffuse optical tomography”
Seminar, Dartmouth College, April 2019.

“Diffusion equation-assisted MCMC methods for the inverse radiative transfer equation”
JMM AWM poster session
Baltimore, MD, January 2019.

“Diffuse optical tomography in the Bayesian framework”
AMS Fall Southeastern Sectional Meeting:
Validation and Verification Strategies in Multiphysics Problems
University of Arkansas, November 2018.

“Diffusive optical tomography in the Bayesian framework” (Poster)
IMA: Recent advances in Machine Learning and Computational Methods for Geoscience
University of Minnesota, October 2018.

“Diffusive optical tomography in a Bayesian framework” (Poster)
ICERM: Advances in PDEs: Theory, Computation, and Application to CFD
Brown University, August 2018.

“Diffusive optical tomography in a Bayesian framework”
Institute for Foundations of Data Science Student Workshop
University of Wisconsin-Madison, April 2018.

“Towards a new numerical method for solving the Bethe ansatz equations”
Quantum Effects on Precision Cosmological Experiments
Los Alamos National Labs, August 2017.

“Revival times for a supersymmetric coherent state” (Poster)
Conference for Undergraduate Women in Physics
Oregon State University, January 2016

“Revival times for a supersymmetric coherent state” (Poster)
Conference Experience for Undergraduates
APS Division of Nuclear Physics, October 2015

“Revival times for a supersymmetric coherent state”
REU presentation
Indiana University, July 2015

“Bohmian Mechanics and Magnetism”
Thesis Presentation
Reed College, April 2015

Grants

Travel Grant

Association for Women in Mathematics: Joint Math Meetings poster session
Baltimore, MD, January 2019

Travel Grant

IMA: Recent Advances in Machine Learning and Computational Methods for Geoscience
Minnesota, October 2018

Travel Grant

ICERM: Advances in PDEs: Theory, Computation, and Application to CFD
Rhode Island, August 2018

Travel Grant

Out in Science, Technology, Engineering, and Mathematics National Conference
Covering eleven members
Chicago, November 2017

QuEPCO Student Travel Grant

Quantum Effects on Precision Cosmological Observations
Santa Fe, August 2017

APS DNP Student Travel Grant

American Physical Society, Division of Nuclear Physics
Santa Fe, 2015

Teaching

Department of Mathematics, University of Wisconsin-Madison

Teaching assistant and coordinator, Calculus II, Fall 2018.

College of Engineering, University of Wisconsin-Madison

Engineering Summer Program
Instructor, Precalculus, Summer 2018.

Department of Mathematics, University of Wisconsin-Madison

Teaching Assistant, Calculus I, Spring 2018.

Department of Physics, University of Wisconsin-Madison

Teaching Assistant, Electricity and Magnetism for Engineers, Fall 2017.

Department of Physics, Reed College

Grader, Quantum Mechanics II, 2016
Tutor/Grader, Mathematical Methods for Physics, 2014-2016
Tutor/Grader, Introduction to Modern Physics, 2014-2016
Tutor, Introduction to Mechanics, 2014-2016
Tutor, Introduction to Electricity and Magnetism, 2014-2016

Department of Mathematics, Reed College

Tutor, Calculus, 2014-2016
Tutor, Introduction to Analysis, 2014-2016
Tutor, Multivariable Calculus I and II, 2014-2016
Teaching Assistant, Introduction to Computing, 2014-2016

Outreach and Service

Volunteer

Girls Math Night Out
September 2018 - December 2018

Speaker

Madison Math Circle
October 2018

Mentor

Directed Reading Program
September 2018 - December 2018

President and Founder

Out in Science, Technology, Engineering, and Mathematics at UW-Madison
July 2017 - July 2018

Volunteer

Expanding Your Horizons
November 2017

Seminar Series Coordinator

Women and Gender Minorities in Physics
September 2016 - July 2018

Fellowships

University Fellowship

Department of Physics
University of Wisconsin-Madison, 2016-2017

Graduate School Fellowship

Department of Physics
University of Wisconsin-Madison, 2016

Firminhac Fellowship for Women in Physics

Department of Physics
University of Wisconsin-Madison, 2016

Awards and Honors

TA award

University of Wisconsin-Madison, 2019

Phi Beta Kappa

Reed College, 2016

Commendation for Excellence

Reed College, 2013 and 2015

Languages and Skills

English (native), French (advanced)
 \LaTeX , MATLAB, Mathematica