Owen Myers

42 Dean Rd Apt. T2, Brookline MA, owendalemyers@gmail.com `https://owenmyers.github.io`

Education

Ph.D, Materials Science
University of Vermont — Graduated May 2015

BA, Physics
University of Vermont — Graduated December 2009

Computational General

All of my published research is a combination of computational and analytical work.

- Unix systems — 7 years
- Amazon Web Services — 8 months
- High performance computing clusters — 5 years
- Git — 6 years
- Web development — 8 months
- Docker — 3 months

Languages

- Python — 6 years
- C++ — 2+ years
- Java — 2 years
- Elasticsearch (and Kiba) — 8 months
- SQL — 8 months
- Rust — 6 months
- R — 1+ year

Experience

Industry Experience

06/2017-Current

Data Engineer: Analysis of large data (over 50 million users) sets, engineering projects focused on the organization and maintenance of these data sets, and some system administration.

Post Graduate Research

01/2015-Current

Monte Carlo simulations (C++) of the square lattice quantum dimer-pentamer model at the RokhsarKivelson point. By relaxing the hard core constraint of one dimer touching each vertex the $U(1)$ local gauge symmetry is reduced to a local Z_3 gauge symmetry.

02/2016-06/2017

Postdoc University of North Carolina, Bioinformatics: Analysis of liquid chromatography mass spectrometry (LC/MS) data. Worked on improving software algorithms for chromatogram building and feature detection of compounds in biological samples.

Teaching

Lecturer 08/2015-12/2015
Champlain College, Introduction to Physics (first semester)

Lecturer 06/2015-08/2015
University of Vermont, Introduction to Physics (second semester)

Graduate Research

01/2014-05/2015
The statistical mechanics of a Hamiltonian which describes the dynamics of pendulums when the bobs interactions are long-range. Similar to the Hamiltonian Mean Field XY spin model but with phase that depends on the particle indices.

01/2013-01/2014
Numerical studies of the nonlinear dynamics of multiple particles in simple spatiotemporally periodic potential. (supported by NASA EPSCoR grant).

08/2011-08/2012
Numerical investigation of the nonlinear dynamics of particles in an "electric curtain" device (supported by Vermont Space Grant Consortium under NASA grant number NNX108AK67H).

08/2010-08/2011
Experimental investigation of velocity distributions of particles in an "electric curtain" device (supported by Vermont Space Grant Consortium under NASA grant number NNX08AZ0ZA).

Undergraduate Research Assistant 08/2008-12/2009
Worked on organic semiconductor solar cells and organic semiconductor crystallization. Three parallel projects: 1) Improving TiO2 films and their annealing to ITO coated substrate 2) purifying phthalocyanines 3) achieving long-range order in phthalocyanine crystals.

Graduate Teaching Assistant

Mechanics (kinematics, oscillations, waves, etc.) 08/2012-12/2012
Astronomy 05/2010-08/2010
Electricity, magnetism, optics and modern physics 01/2010-05/2010

Publications

- Owen Myers, Chris Herdman, *Z_3 topological order in the quantum dimer-pentamer model*, Physical Review B, (2017).
  https://doi.org/10.1103/PhysRevB.96.174434
- Owen Myers, Susan Sumner, Shuzhao Li, Stephen Barnes, Xiuxia Du, *One Step Forward for Reducing False Positive and False Negative Compound Identifications from Mass Spectrometry Metabolomics Data: New Algorithms for Constructing Extracted Ion Chromatograms and Detecting Chromatographic Peaks*, Analytical Chemistry, (2017).
  https://doi.org/10.1021/acs.analchem.7b00947
- Owen Myers, Susan Sumner, Shuzhao Li, Stephen Barnes, Xiuxia Du, *Detailed Investigation and Comparison of the XCMS and MZmine 2 Chromatogram Construction and Chromatographic Peak Detection Methods for Preprocessing Mass Spectrometry Metabolomics Data*, Analytical Chemistry, (2017).
  https://doi.org/10.1021/acs.analchem.7b01069
- Owen Myers, Adrian Del Maestro, Junru Wu, Jeffrey S. Marshall, *Long-Range Interacting Pendula: A Simple Model for Understanding Complex Dynamics of Charged Particles in An Electric Curtain Device*, Journal of Applied Physics, (2017).
  http://dx.doi.org/10.1063/1.4980095
- Owen Myers, Junru Wu, Jeffrey S. Marshall, Christopher M. Danforth, *Computational studies of multiple-particle nonlinear dynamics in a spatio-temporally periodic potential*, Journal of Applied Physics, **115**, 244908, (2014).
  http://dx.doi.org/10.1063/1.4885895
- Owen D. Myers, Junru Wu, Jeffery S. Marshall, *Nonlinear Dynamics of Particles Excited by and Electric Curtain*, Journal of Applied Physics, **114**, 154907, (2013).
  http://dx.doi.org/10.1063/1.4826267
- **(Conference Paper)** Owen Myers, Junru Wu, Jeffery Marshall, *Chaos in the Electric Curtain*, Proceedings of the 2012 Electrostatics Joint Conference.
  http://electrostatics.org/esa2012proceedings.html

Awards and Prizes

Ronald Suiter Prize 2015
"... to support attendance at conferences, seminars, workshops, etc., by undergraduate and graduate students in the College of Arts and Sciences at UVM. Prizes will be awarded based upon merit and the decisions will be made by a faculty committee."

Ronald Suiter Prize 2014

Student Paper Award 2012
1^{st} Place Student Paper Award at the Joint Electrostatics Conference, Electrostatics Society of America, International Electrostatic Assembly.

Albert D. Crowell Award 2009
"This award is given to a senior physics major who, in the judgment of the appropriate faculty members, has demonstrated promise in experimental physics through a research or laboratory project." University of Vermont Physics Department.

Talks

A numerical study of the energy gap of the quantum dimer-pentamer model, APS March Meeting (American Physical Society). 2016

Dimer liquid state in the quantum dimer-pentamer model on the square lattice, APS March Meeting (American Physical Society). 2015

Multiple Particles' Dynamics in a Spatiotemporally Periodic Potential, UVM, Physics Colloquium. 2014

Computational and Experimental Studies of Charged Particles in a Scalable 1D Spatial and Temporal Periodic Potential Created With Twin Periodic Electrode Curtains, APS March Meeting (American Physical Society). 2014

Nonlinear Behavior of Particles Excited by Electric Curtains, UVM, Condensed Matter and Materials Science Seminar. 2013

Chaos in the Electric Curtain, Electrostatics Joint Conference. 2012

Mentoring

Mentored high school and college student teaching them Python and guiding them to develop a program which can extract features from mass spectrometry data. 2013

Mentored an undergraduate student working on a senior research project. 2016

Graduate Student Service

Graduate Student Senate Treasurer 2013-2014
Balanced annual budget of around $\$20,000$

Graduate Student Senate Communications Director 2012-2013

Graduate Student Senate Senator 2011-2012

University of Vermont Committees

Incentive Based Budgeting Steering Committee 2013-2014

Board of Trustees Subcommittee:
Budget Finance and Investment Committee 2013-2014