Owen Myers

Bioinformatics Dept., UNC Charlotte, omyers2@uncc.edu, (413)687-9482 , www.uvm.edu/~omyers/

Education

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

Research Experience

Current Research

- 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. I am using Monte Carlo simulations to study the properties of the system.
- The statistical mechanics of a Hamiltonian which describes the dynamics of pendulums when the bobs interactions are long-range. The model is very similar to the Hamiltonian Mean Field XY spin model but has an additional phase that depends on the particle (bob/spin) indices.

Graduate Research Assistant

- 01/2013-01/2014 Numerical studies of the nonlinear dynamics of multiple particles in simple spatiotemporally periodic potential, as well as work in developing the theory to describe the many-body case (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 An Experimentally investigation on the 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
I worked on organic semiconductor solar cells and organic semiconductor crystallization. This work consisted of three parallel projects: 1) Improving TiO2 films and their annealing to ITO coated glass substrate 2) purifying phthalocyanines 3) achieving long-range order in phthalocyanine crystals.

Teaching Experience

Courses

- Champlain College Introduction to Physics (Sci-250): Algebra based investigation of classical Newtonian mechanics.
- University of Vermont Physics 12: Algebra based survey of electricity, magnetism, optics and modern physics.

Graduate Teaching Assistant

- TA for mechanics lab class (kinematics, oscillations, waves, etc.).
- TA for astronomy lab class.
- TA for electricity, magnetism, optics and modern physics lab class.

Publications

- Owen Myers, Adrian Del Maestro, Junru Wu, Jeffrey S. Marshall, *A Simple Model for Long-Range Interacting Pendula*, arXiv:1501.04116 [physics.class-ph], (2015).

- 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 Papers

Owen, 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
"Each year the Ronald Suiter Prize will provide up to $1,000 each to six or more students in the College of Arts and Sciences 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

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

References

- **Junru Wu**
  Email: jwu@uvm.edu
  Website: `http://www.uvm.edu/~jwu/Wu.html`
  Affiliation: Department of Physics & Materials Science Program, University of Vermont.
- **Adrian Del Maestro**
  Email: Adrian.DelMaestro@uvm.edu
  Website: `http://www.delmaestro.org/adrian/`
  Affiliation: Department of Physics & Materials Science Program, University of Vermont.
- **Chris Herdman**
  Email: chris.herdman@uwaterloo.ca
  Website: `https://services.iqc.uwaterloo.ca/people/profile/cherdman/`
  Affiliation: Institute for Quantum Computing, University of Waterloo.

Service

Student Body Governing Experience

Treasurer 05/2013-05/2014
Duties include: 1) Balancing annual budget (around $\$20,000$) 2) documenting and journaling all expenses 3) responsible for all purchases and spending done by the GSS. http://www.uvm.edu/ gss/

Communications Director 05/2012-05/2013
Duties included: 1) Management and development of GSS website 2) handling in and outgoing emails 3) meeting minutes.
http://www.uvm.edu/ gss/

GSS Senator 2011-2012
GSS senators represent the graduate students in their respective departments. Senators have voting power on issues brought before them by the executive council. Other obligations include help in organizing campus events and sitting on GSS subcommittees.

UVM Committee Service

Incentive Based Budgeting Steering Committee 08/2013-08/2014

Board of Trustees Subcommittee:
Budget Finance and Investment Committee 08/2013-08/2014