Sarah Maddox Groves

Personal

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Education

Current	PhD Candidate in Chemical and Physical Biology, **Vanderbilt University**, Nashville, TN Advisor: Dr. Vito Quaranta, M.D., Professor of Biochemistry and Pharmacology
2012-2016	Bachelors of Science in Physics and Mathematics, **College of William and Mary**, Williamsburg, VA

Research Experience

Current	Graduate Researcher at Vanderbilt University, Nashville, TN *Thesis Laboratory* Studying the evolution of heterogeneous phenotypes within small cell lung cancer cell lines.
2016-2017	Graduate Researcher at Vanderbilt University, Nashville, TN *Laboratory Rotations* Completed four 8-week rotations in labs that were interested in myosin tracking to tips of microvilli, effect of ECM stiffness on cancer cell growth, modeling of drug-induced dynamics in melanoma, and fetal membrane developmental dynamics.
2015-2016	Undergraduate Researcher at College of William and Mary, Williamsburg, VA *Senior Thesis: Apnea Analysis in Pretern Infants* Programmed a biophysical 'Query User Data Interface' in MATLAB for the Apnea of Prematurity group at UVA and William and Mary. The goal of this project was to streamline data acquirement for the neonatal intensive care unit at UVA.
Summer 2015	Undergraduate Researcher at University of Michigan, CERN, Geneva, Switzerland *Design of Experiments for the 2015 CLOUD Run* Worked under Hamish Gordon and Jasper Kirkby. Used statistical analysis and coding in R of a Kriging model emulator, based on a 5 dimensional Maximin Latin Hypercube, to determine how cloud formation depends on five atmospheric variables. The goal of this project was to design the experiments for the fall 2015 run of the CERN CLOUD experiment.
2014-2015	Undergraduate Researcher at College of William and Mary, Williamsburg, VA *Properties of Silk Studied by Atomic Force Microscopy* Investigated the structure and physical properties of brown recluse spider silk by learning to useatomic force microscopy in the Nanomaterials and Imaging Laboratory of Applied Science.

Summer 2014	Undergraduate Researcher at University of Chicago and Argonne National Laboratory, Chicago, IL *Analyzing the Viscoelastic Properties of Langmuir Monolayers* Worked at the University of Chicago and at Argonne National Laboratory APS Sector 15 with ChemMatCARS under the MRSEC program (Materials Research Science and Engineering Center). Analyzed the rheology of nanoparticle and phospholipid monolayers under oscillatory compression to quantitatively describe the viscoelastic properties of the films.
2014-2015	Undergraduate Researcher at College of William and Mary, Williamsburg, VA *Global Fits to the Precision Proton Form Factor Data from Mainz* The goal of this project was to statistically analyze data from Mainz, and to seek an empirical model of the electron charge distribution in the proton to determine its RMS radius, which would address a discrepancy in proton size from varying experiments. Work published as paper: "Consistency of electron scattering data with a small proton radius" published in Physics Review C (found here).

Professional Experience

Fall 2018	Mentor for Lab Rotation Student, Vanderbilt University Assisted rotation student with 8-week project on pathway mutational load of Small Cell Lung Cancer cell lines.
2018-2019	Teaching Assistant for Cancer Systems Biology course, Vanderbilt University Organized, planned and developed course content, taught or led almost every lecture, and graded students on several project presentations throughout the semester.
Spring 2018	Mentor for Lab Rotation Student, Vanderbilt University Assisted rotation student with 8-week project on drug response assays and drug sensitivity analysis of Small Cell Lung Cancer cell lines to various perturbagens.
Fall 2013	Teaching Assistant for Foundations of Higher Mathematics course, College of William and Mary

Published Papers

Griffioen, K., Carlson, C., **Maddox, S.** (2016). Consistency of electron scattering data with a small proton radius. *Physics Review C*, **93**, 065207.

Honors and Awards

2017-2021 NSF GRFP Fellowship: DGE - 1445197

Invited Talks

March 2019	Introduction to RNA Velocity Single Cell RNA-seq Group Meeting, Vanderbilt University, TN
October 2018	Introduction to SCLC Mouse Models SCLC U54 Data Club, Vanderbilt University, TN

Poster Presentations

January 2019	Stochastic Physics in Biology, Gordon Research Conference (GRC), Ventura, CA
September 2018	Cancer Systems Biology Consortium (CSBC) Annual Meeting, NIH, Bethesda, MD
June 2018	International Conference on Systems Biology of Human Diseases, Los Angeles, CA
October 2017	CSBC Annual Meeting, Broad Institute, Cambridge, MA
August 2017	International Conference on Systems Biology, Virginia Tech, Blacksburg, VA

Scientific Meetings

April 2019	IASLC SCLC Meeting, New York City, NY
January 2019	Stochastic Physics in Biology, GRC, Ventura, CA
September 2018	CSBC Annual Meeting, NIH, Bethesda, MD
June 2018	International Conference on Systems Biology of Human Diseases, Los Angeles, CA
October 2017	CSBC Annual Meeting, Broad Institute, Cambridge, MA
August 2017	International Conference on Systems Biology, Virginia Tech, Blacksburg, VA
March 2017	Vanderbilt Core-To-Core Research Meeting, Nashville, TN

Fellowships

2016-2017	BIDS: Vanderbilt Training Program in Big Biomedical Data Science Trainee, NIH 1T32LM012412-01
2017-2021	NSF Graduate Research Fellowships Program Fellow, DGE - 1445197

Academic and Community Service

2019	Committee Member for Chemical and Physical Biology Program Retreat Planning Committee, Vanderbilt University Assisted in planning the annual retreat for my program.
2019	Volunteer at Vanderbilt Student Volunteers for Science, Vanderbilt University Led 4 science lessons to an elementary school class on water density, vacuums, ocean currents, and electrical currents.
2017-2018	Outreach Chair at Vanderbilt University Women in Science and Engineering, Vanderbilt University Planned and organized various scientific outreach activities with local organizations. Supervised committee of students and acted as liason to Vanderbilt's Center for Scientific Outreach and Nashville Adventure Science Center.

References

Please contact me for references.