

# Peyton D. Murray



+1 408 761 9078

[peynmurray@gmail.com](mailto:peynmurray@gmail.com)

[peytondmurray.github.io](https://peytondmurray.github.io)

<b>Computing</b>	Python (proficient), C++ (intermediate), Go (intermediate), Bash (intermediate), CUDA (intermediate), Git (proficient), SQL (basic)	
<b>Skills</b>	Simulation, Time Series, Linux, Data Analysis, Statistics, Data Visualizations, Python Data Ecosystem (numpy, scipy, matplotlib, pandas, dask, ...), HPC, Distributed Computing, VTK.	
<b>Education</b>	University of California, Davis Ph. D. Physics: Dec 2018 M. S. Physics: Dec 2013	2012 – 2018
	Saint Mary's College of California, Moraga B. S. Physics, <i>summa cum laude</i>	2007 – 2011
<b>Research &amp; Experience</b>	Computational Physics Laboratory Tampere University <i>Postdoctoral Researcher</i> Advisor: Lasse Laurson	Jan 2019 – Present
	<ul style="list-style-type: none"><li>Carried out simulations of nanoscale magnetic materials using a combination of open source software and in-house code (Go, CUDA, and Python).</li><li>Leveraged GPUs deployed as part of the <a href="#">CSC's</a> Taito-GPU supercluster.</li></ul>	
	Department of Physics University of California, Davis <i>Graduate Student Researcher</i> Advisor: Kai Liu	2012 – 2018
	<ul style="list-style-type: none"><li>Developed open source tools for analyzing and visualizing magnetic measurements using the First-Order Reversal-Curves (FORC) technique (Python).</li><li></li></ul>	
	Physics Division Lawrence Berkeley National Laboratory <i>Junior Specialist, <a href="#">ATLAS Experiment</a></i> Principal Investigator: Maurice Garcia-Sciveres	2011 – 2012
	<ul style="list-style-type: none"><li>Tested next-generation hardware developed for tracking the trajectories of charged particles at the <a href="#">Large Hadron Collider</a> (LHC), the largest particle physics experiment in the world.</li><li>Developed system control GUI and backend for an integrated circuit tester (C++ and Qt). These tools allowed for automated testing of hundreds of chips (entire wafers) at a time, greatly increasing throughput.</li><li>These chips <a href="#">were installed</a> as part of the Insertable B-Layer system at the Large Hadron Collider in 2014[1].</li></ul>	
	Physics Department Saint Mary's College of California, Moraga <i>Research Assistant, ALFALFA Collaboration</i> Advisor: Ron Olowin	2010 – 2011
	<ul style="list-style-type: none"><li>International collaboration conducting galactic and extragalactic radio astronomy observations</li></ul>	

Teaching	Teaching Assistant	2012 – 2016
	Department of Physics, University of California, Davis	
	Student Tutor and Live-In Mentor	2010 – 2011
	Physics Department, Saint Mary's College of California, Moraga	

## Publications

1. Collaboration, T. A. I. Prototype ATLAS IBL modules using the FE-I4A front-end readout chip. *Journal of Instrumentation* **7**, P11010–P11010. ISSN: 1748-0221. <http://stacks.iop.org/1748-0221/7/i=11/a=P11010?key=crossref.1607afc402756d2e7218f7327961358c> (2012).
2. Murray, P. D. *et al.* Interfacial-Redox-Induced Tuning of Superconductivity in  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ . *In review*.
3. Murray, P. D., Zhang, J., Zhang, X. & Liu, K. Electrically Tunable Exchange Bias. *In preparation*.
4. Gilbert, D. A. *et al.* Building Bridges from FORC to Phase-Resolved Major Loops. *In preparation*.
5. Skaugen, A., Murray, P. D. & Laurson, L. Analytical computation of the demagnetizing energy of thin film domain walls. **2**, 1–11. arXiv: [1906.07475](https://arxiv.org/abs/1906.07475) (2019).
6. Karayev, S. *et al.* Interlayer exchange coupling in Pt/Co/Ru and Pt/Co/Ir superlattices. *Physical Review Materials* **3**, 041401. ISSN: 2475-9953 (2019).
7. Quintana, A. *et al.* Voltage-Controlled ON–OFF Ferromagnetism at Room Temperature in a Single Metal Oxide Film. *ACS Nano* **12**, 10291–10300. ISSN: 1936-0851 (2018).
8. Gilbert, D. A. *et al.* Ionic tuning of cobaltites at the nanoscale. *Physical Review Materials* **2**, 104402. ISSN: 2475-9953 (2018).
9. De Toro, J. A. *et al.* Remanence plots as a probe of spin disorder in magnetic nanoparticles. *Chemistry of Materials* **29**, 8258–8268. ISSN: 15205002 (2017).
10. Sun, L. *et al.* Magnetization reversal in kagome artificial spin ice studied by first-order reversal curves. *Physical Review B* **96**, 144409. ISSN: 24699969. arXiv: [1709.05656](https://arxiv.org/abs/1709.05656) (2017).
11. Zhang, Q. *et al.* Magnetic fingerprint of interfacial coupling between CoFe and nanoscale ferroelectric domain walls. *Applied Physics Letters* **109**, 082906. ISSN: 00036951 (2016).